STATEMENT ACCOMPANYING SEQUENCE LISTING

The sequence listing does not include matter that goes beyond the disclosure in the international application.

The printout of the attached Sequence Listing is identical to the computer readable sequence listing on the enclosed computer disk.

SEQUENCE LISTING

10/533811

<110> THE GOVERNMENT OF THE UNITED STATES OF AMERICA AS REPRESENTED BY THE SECRETARY OF THE DEPARTMENT OF HEALTH AND HUMAN SERVICES
Valenzuela, Jesus G.
Ribeiro, Jose M.C.
Barral, Aldina
Netto, Manoel
Brodskyn, Claudia
Gomes, Regis

<120> LUTZOMYIA LONGIPALPIS POLYPEPTIDES AND METHODS OF USE

<130> 4239-67028

<150> US 60/422,303
<151> 2002-10-29

<160> 73

<170> PatentIn version 3.2

<210> 1
<211> 271
<212> PRT
<213> Lutzomyia longipalpis

<400> 1

Met Leu Gln Ile Lys His Leu Leu Ile Phe Val Gly Leu Leu Val Val
1 5 10 15

Val Asn Ala Gln Ser Asn Tyr Cys Lys Gln Glu Ser Cys Ser Ser Gly
20 25 30

Gly Val Glu Arg Pro His Ile Gly Cys Lys Asn Ser Gly Asp Phe Ser
35 40 45

Glu Thr Cys Ser Gly Asp Ala Glu Ile Val Lys Met Asp Lys Lys Lys
50 55 60

Gln Asn Leu Leu Val Lys Met His Asn Arg Leu Arg Asp Arg Phe Ala
65 70 75 80

Arg Gly Ala Val Pro Gly Phe Ala Pro Ala Ala Lys Met Pro Met Leu
85 90 95

Lys Trp Asn Asp Glu Leu Ala Lys Leu Ala Glu Tyr Asn Val Arg Thr
100 105 110

Cys Lys Phe Ala His Asp Lys Cys Arg Ala Ile Asp Val Cys Pro Tyr
115 120 125

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Ala Gly Gln Asn Leu Ala Gln Met Met Ser Tyr Pro Thr His Arg Asp
    130                 135                 140

Leu Asn Tyr Val Leu Lys Asn Leu Thr Arg Glu Trp Phe Trp Glu Tyr
145                 150                 155                 160

Arg Trp Ala Lys Gln Ser Gln Leu Asp Asn Tyr Val Gly Gly Pro Gly
                165                 170                 175

Lys Asp Asn Lys Gln Ile Gly His Phe Thr Ala Phe Val His Glu Lys
            180                 185                 190

Thr Asp Lys Val Gly Cys Ala Ile Ala Arg Phe Thr Asn Glu His Asn
        195                 200                 205

Phe Lys Glu Thr Leu Leu Ala Cys Asn Tyr Cys Tyr Thr Asn Met Met
    210                 215                 220

Lys Glu Arg Ile Tyr Thr Gln Gly Lys Pro Cys Ser Gln Cys Gln Ser
225                 230                 235                 240

Lys Lys Cys Gly Pro Val Tyr Lys Asn Leu Cys Asp Pro Ser Glu Lys
                245                 250                 255

Val Asp Pro Thr Pro Asp Val Leu Lys Gln Trp Lys His Gly Lys
            260                 265                 270
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<210> 2
<211> 905
<212> DNA
<213> Lutzomyia longipalpis

<400> 2

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cgggaggtgt tgagagaccc catattgggt gcaaaaactc tggagatttt tccgaaactt    180

gctccggaga tgcagaaatt gttaagatgg acaagaagaa gcagaacctc cttgtgaaaa    240

tgcacaatcg cctgagagat agatttgctc gtggtgcagt gccaggtttt gcaccagctg    300

cgaaaatgcc aatgcttaaa tggaacgatg aactggccaa attggcagag tacaacgtga    360

gaacgtgcaa atttgcccac gataaatgcc gcgcaattga tgtctgcccc tatgctggac    420

agaatctagc tcaaatgatg tcctatccta cccatcgaga tctaaactat gttcttaaga    480

atctcacaag ggaatggttc tgggagtaca gatgggctaa gcaatctcag cttgataatt    540
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acgtgggtgg tcctgggaaa gacaacaaac aaattggaca tttcacagct tttgtgcatg 600

agaaaacaga caaagttgga tgcgctatag ctcgatttac aaatgagcac aattttaagg 660

agaccctcct agcttgcaac tactgctaca cgaatatgat gaaggagagg atctacacgc 720

agggaaaacc ttgttcacag tgtcagagca aaaagtgtgg gccagtctac aagaacctgt 780

gtgatccttc ggagaaggtt gatccaactc ctgatgtcct taagcaatgg aagcatggaa 840

aatgattatt aagctcactt caaatgtttc caatccaaaa aaaaaaaaaa aaaaaaaaaa 900

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<210> 3
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<212> PRT
<213> Lutzomyia longipalpis

<400> 3

Met Leu Leu Arg Ser Leu Phe Val Leu Phe Leu Ile Phe Leu Thr Phe
1 5 10 15

Cys Asn Ala Glu Glu Glu Leu Ile Glu Arg Lys Leu Thr Gly Lys Thr
20 25 30

Ile Tyr Ile Ser Thr Ile Lys Leu Pro Trp Phe Gln Ala Leu Asn His
35 40 45

Cys Val Lys Asn Gly Tyr Thr Met Val Ser Ile Lys Thr Phe Glu Glu
50 55 60

Asn Lys Glu Leu Leu Lys Glu Leu Lys Arg Val Ile Arg Thr Glu Asp
65 70 75 80

Thr Gln Val Trp Ile Gly Gly Leu Lys His His Gln Phe Ala Asn Phe
85 90 95

Arg Trp Val Ser Asp Gly Ser His Val Ala Thr Ala Ser Gly Tyr Thr
100 105 110

Asn Trp Ala Pro Gly Glu Pro Ala Asp Ser Phe Tyr Tyr Asp Gln Phe
115 120 125

Cys Met Ala Met Leu Phe Arg Lys Asp Gly Ala Pro Trp Asp Asp Leu
130 135 140

Asn Cys Trp Val Lys Asn Leu Phe Val Cys Glu Lys Arg Asp Asp
145 150 155

<210> 4
<211> 617
<212> DNA
<213> Lutzomyia longipalpis

<400> 4
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acttattgag agaaagttaa caggaaaaac gatctatatc tcaacaataa agcttccgtg 180

gttccaagct cttaatcatt gtgttaaaaa tggctacaca atggtgtcaa ttaagacatt 240

tgaagagaat aaagaactcc ttaaagaact caaaagggtg attaggacag aagatacaca 300

agtttggatt ggaggcctca aacatcatca atttgcaaac tttcgttggg taagcgatgg 360

aagccacgta gcaacagctt cagggtacac caattgggcc ccaggggagc cagctgattc 420

cttctattac gatcaatttt gcatggcgat gttgttcaga aaagacggcg ctccgtggga 480

tgatttgaat tgttgggtta agaatctttt tgtttgtgag aaacgagatg attgagaggc 540

tatttttgtt atctcaccgt tttgttgaat aaaaaagaag aagaaagaca aaaaaaaaaa 600

aaaaaaaaaa aaaaaaa 617

<210> 5
<211> 304
<212> PRT
<213> Lutzomyia longipalpis

<400> 5

Met Lys Leu Leu Gln Ile Ile Phe Ser Leu Phe Leu Val Phe Phe Pro
1 5 10 15

Thr Ser Asn Gly Ala Leu Thr Gly Asn Glu Ser Ala Ala Asn Ala Ala
20 25 30

Pro Leu Pro Val Val Leu Trp His Gly Met Gly Asp Ser Cys Cys Phe
35 40 45

Pro Phe Ser Leu Gly Ser Ile Lys Lys Leu Ile Glu Gln Gln Ile Pro
50 55 60

Gly Ile His Val Val Ser Leu Lys Ile Gly Lys Ser Leu Ile Glu Asp
65 70 75 80

Tyr Glu Ser Gly Phe Phe Val His Pro Asp Lys Gln Ile Gln Glu Val
85 90 95

Cys Glu Ser Leu Gln Asn Asp Leu Thr Leu Ala Asn Gly Phe Asn Ala
100 105 110

Ile Gly Phe Ser Gln Gly Ser Gln Phe Leu Arg Gly Leu Val Gln Arg
115 120 125

Cys Ser Ser Ile Gln Val Arg Asn Leu Ile Ser Ile Gly Gly Gln His
130 135 140

Gln Gly Val Phe Gly Leu Pro Tyr Cys Pro Ser Leu Ser Arg Lys Thr
145 150 155 160

Cys Glu Tyr Phe Arg Lys Leu Leu Asn Tyr Ala Ala Tyr Glu Lys Trp
165 170 175

Val Gln Lys Leu Leu Val Gln Ala Thr Tyr Trp His Asp Pro Leu Asn
180 185 190

Glu Asp Ala Tyr Arg Thr Gly Ser Thr Phe Leu Ala Asp Ile Asn Asn
195 200 205

Glu Arg Gln Ile Asn Asn Asp Tyr Ile Asn Asn Ile Arg Lys Leu Asn
210 215 220

Arg Phe Val Met Val Lys Phe Leu Asn Asp Ser Met Val Gln Pro Ile
225 230 235 240

Glu Ser Ser Phe Phe Gly Phe Tyr Ala Pro Gly Thr Asp Thr Glu Val
245 250 255

Leu Pro Leu Lys Gln Ser Lys Ile Tyr Leu Glu Asp Arg Leu Gly Leu
260 265 270

Gln Ser Val Pro Ile Asp Tyr Leu Glu Cys Gly Gly Asp His Leu Gln
275 280 285

Phe Thr Lys Glu Trp Phe Ile Lys Phe Ile Ile Pro Tyr Leu Lys Gln
290 295 300

<210> 6
<211> 1273
<212> DNA
<213> Lutzomyia longipalpis

<400> 6
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ttaacaaaat tgctccattt tttcgttttc tgaatattct gttgaaattt tgattaatct 120

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attttatgtg cagtttttac taaaaatccc ttatcagcaa cccggtgtct acagttttgt   180
cacgctcagt agcatcttca aggtggtaag aaaaaatgaa actcctgcaa atcatcttct   240
ctctcttcct ggtctttttc ccgacctcaa atggggccct gaccggaaat gaaagtgcag   300
caaatgcagc tcccttgcct gtcgtcctgt ggcacgggat gggcgattct tgctgctttc   360
ccttcagttt gggaagcata aaaaaattaa ttgaacaaca aattcctggg attcatgttg   420
ttagcctgaa aattggaaag tctctcattg aggactatga aagtggattt tttgttcatc   480
cagacaagca aattcaggaa gtttgtgagt cacttcagaa cgatctaaca ctcgcaaatg   540
gattcaatgc aattggattt tctcagggta gtcagttcct gcgaggtctt gtgcaacgat   600
gttcttctat acaagtaagg aatctcattt ccattggagg acagcatcaa ggggtttttg   660
gtctgcccta ttgtccttcg ttgagcagaa agacttgcga atactttaga aagctcctga   720
attatgcagc ttatgaaaaa tgggtacaga aactcctagt tcaagccacc tactggcatg   780
atcctctaaa tgaggatgca tatcggactg gaagcacttt ccttgctgat ataaataatg   840
agagacaaat caataatgac tatattaata atattcggaa gctaaatcgt tttgtgatgg   900
taaagttcct caacgacagc atggttcagc caattgaatc tagtttcttt ggattctacg   960
ctccaggaac tgatacagaa gttctcccat taaaacaaag caagatttat ttggaagatc  1020
gtttgggact tcaatcagta ccgatagatt atctagaatg cggaggagat catttgcaat  1080
ttacaaaaga atggttcata aagtttatca taccctatct gaagcaataa gagctgcaat  1140
gtaattgatt aaaaaatgtt aaccatttca ggatgattgg gtgacccctt aaaaatataa  1200
atgaaaaaat atacaaaaga aataaatttt tatattgatc ccacaaaaaa aaaaaaaaaa  1260
aaaaaaaaaa aaa                                                     1273
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<210> 7
<211> 102
<212> PRT
<213> Lutzomyia longipalpis

<400> 7

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Cys Ala Trp Pro Ile Asn Ala Glu Asp Asn Glu Glu Val Gly Lys Ala
            20                  25                  30

Arg Glu Lys Arg Gly Leu Lys Asp Ala Met Glu His Phe Lys Asn Gly
        35                  40                  45
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Phe Lys Glu Leu Thr Lys Asp Phe Lys Leu Pro Ser Leu Pro Ser Leu
    50                  55                  60

Pro Gly Phe Gly Lys Lys Pro Glu Ser Gly Ser Ser Glu Asp Ser Gly
65                  70                  75                  80

Asp Lys Thr Glu Asp Thr Ser Gly Ser Lys Asp Asp Gln Ser Lys Asp
                85                  90                  95

Asn Thr Val Glu Glu Ser
            100
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<210> 8
<211> 466
<212> DNA
<213> Lutzomyia longipalpis

<400> 8

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ataatgaaga agttggaaag gcgagagaaa aaagaggctt aaaagacgca atggaacact    180

tcaaaaatgg atttaaggag ctgacaaagg actttaaact tccaagcctt ccaagtcttc    240

ctggatttgg taaaaagcct gaatctggaa gttctgaaga ttctggagat aaaactgagg    300

ataccagtgg atctaaggac gaccaatcaa aggataatac ggtcgaagaa tcttaagaaa    360

ggcgcaaata gctattttca aagtggcgaa tgtttctttc tttatctgaa ataaatattt    420

ttaaaccttt cgaaaccaaa aaaaaaaaaa aaaaaaaaaa aaaaaa                   466
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<210> 9
<211> 247
<212> PRT
<213> Lutzomyia longipalpis

<400> 9

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Met Asn Phe Leu Leu Lys Ile Phe Ser Leu Leu Cys Leu Cys Gly Leu
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Gly Tyr Ser Trp Gln Asp Val Arg Asn Ala Asp Gln Thr Leu Trp Ala
            20                  25                  30

Tyr Arg Ser Cys Gln Lys Asn Pro Glu Asp Lys Asp His Val Pro Gln
        35                  40                  45

Trp Arg Lys Phe Glu Leu Pro Asp Asp Glu Lys Thr His Cys Tyr Val
    50                  55                  60
```

```
Lys Cys Val Trp Thr Arg Leu Gly Ala Tyr Asn Glu Asn Glu Asn Val
65                  70                  75                  80

Phe Lys Ile Asp Val Ile Thr Lys Gln Phe Asn Glu Arg Gly Leu Glu
                85                  90                  95

Val Pro Ala Gly Leu Asp Gln Glu Leu Gly Gly Ser Thr Asp Gly Thr
            100                 105                 110

Cys Lys Ala Val Tyr Asp Lys Ser Met Lys Phe Phe Lys Ser His Phe
        115                 120                 125

Met Asp Phe Arg Asn Ala Tyr Tyr Ala Thr Tyr Asp Gly Ser Asp Glu
    130                 135                 140

Trp Phe Ser Lys Asn Pro Asp Val Lys Pro Lys Gly Thr Lys Val Ser
145                 150                 155                 160

Glu Tyr Cys Lys Asn Lys Asp Asp Gly Asp Cys Lys His Ser Cys Ser
                165                 170                 175

Met Tyr Tyr Tyr Arg Leu Ile Asp Glu Asp Asn Leu Val Ile Pro Phe
            180                 185                 190

Ser Asn Leu Pro Asp Tyr Pro Glu Asp Lys Leu Glu Glu Cys Arg Asn
        195                 200                 205

Glu Ala Lys Ser Ala Asn Glu Cys Lys Ser Ser Val Ile Tyr Gln Cys
    210                 215                 220

Leu Glu Asn Ala Asp Lys Ser Ala Leu Asp Ala Ser Leu Asn Ile Leu
225                 230                 235                 240

Asp Glu Phe Ser Gly Arg Tyr
                245
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<210> 10
<211> 955
<212> DNA
<213> Lutzomyia longipalpis

<400> 10
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gtatagatcg tgccaaaaga atcctgaaga taaggatcac gtacctcaat ggaggaagtt 180

cgaattaccc gacgatgaaa agactcattg ctacgtcaag tgcgtatgga cgcgtttggg 240

agcttacaat gaaaatgaaa atgttttcaa aattgatgtc attactaagc aatttaatga 300

acgtggccta gaagttccgg ctggacttga tcaagaattg ggtggttcta cagatggaac 360

ttgcaaagca gtttacgata aatccatgaa gttcttcaaa tctcatttta tggactttag 420

gaatgcttac tacgcaactt atgacggttc tgatgaatgg tttagcaaga accctgatgt 480

aaaaccgaaa ggaacaaaag tttccgaata ctgcaaaaat aaagatgatg gagattgcaa 540

acattcctgc agtatgtact actaccgctt aatcgatgaa gacaacttag ttattccgtt 600

cagcaactta cctgactatc ccgaagataa gctcgaggaa tgcaggaatg aagccaagtc 660

cgcaaatgag tgcaaatcat ctgttatcta tcagtgtttg gaaaatgcgg ataagtcagc 720

tttagacgcg tctttgaata tactcgatga gttttctgga agatattaaa acaaactgga 780

taaaaaactt aggccaacct atgattcgaa cttacgattt tgaacttgaa attcatgtgc 840

tttaacctat tgtcccacta ggaagaaaaa tccatatttg gtgatgttaa actatttttg 900

aacctcttca aaataaacaa ttttcaaaaa aaaaaaaaaa aaaaaaaaaa aaaaa 955

<210> 11
<211> 325
<212> PRT
<213> Lutzomyia longipalpis

<400> 11

Met Phe Leu Lys Trp Val Val Cys Ala Phe Ala Thr Val Phe Leu Val
1 5 10 15

Gly Val Ser Gln Ala Ala Pro Pro Gly Val Glu Trp Tyr His Phe Gly
20 25 30

Leu Ile Ala Asp Met Asp Lys Lys Ser Ile Ala Ser Asp Lys Thr Thr
35 40 45

Phe Asn Ser Val Leu Lys Ile Asp Glu Leu Arg His Asn Thr Lys Thr
50 55 60

Asp Gln Tyr Ile Tyr Val Arg Ser Arg Val Lys Lys Pro Val Ser Thr
65 70 75 80

Arg Tyr Gly Phe Lys Gly Arg Gly Ala Glu Leu Ser Glu Ile Val Val
85 90 95

Phe Asn Asn Lys Leu Tyr Thr Val Asp Asp Lys Ser Gly Ile Thr Phe
100 105 110

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Arg Ile Thr Lys Asp Gly Lys Leu Phe Pro Trp Val Ile Leu Ala Asp
        115                 120                 125

Ala Asp Gly Gln Arg Pro Asp Gly Phe Lys Gly Glu Trp Ala Thr Ile
    130                 135                 140

Lys Asp Asp Thr Ile Tyr Val Gly Ser Thr Gly Met Leu Lys Phe Thr
145                 150                 155                 160

Ser Ser Leu Trp Val Lys Lys Ile Thr Lys Asp Gly Val Val Thr Ser
                165                 170                 175

His Asp Trp Thr Asp Lys Tyr Arg Lys Ile Leu Lys Ala Leu Asn Met
            180                 185                 190

Pro Asn Gly Phe Val Trp His Glu Ala Val Thr Trp Ser Pro Phe Arg
        195                 200                 205

Lys Gln Trp Val Phe Met Pro Arg Lys Cys Ser Arg His Pro Phe Ser
    210                 215                 220

Gln Glu Leu Glu Glu Arg Thr Gly Cys Asn Lys Ile Val Thr Ala Asp
225                 230                 235                 240

Glu Asn Phe Asn Asp Ile Gln Val Ile His Ile Gln Asp Gln Pro Tyr
                245                 250                 255

Asn Leu Ala Ser Gly Phe Ser Ser Phe Arg Phe Ile Pro Gly Thr Lys
            260                 265                 270

Asn Glu Arg Leu Leu Ala Leu Arg Thr Val Glu Gln Glu Asp Gln Val
        275                 280                 285

Lys Thr Trp Ala Val Val Met Asp Met Lys Gly Thr Val Leu Met Tyr
    290                 295                 300

Glu Lys Glu Leu Tyr Asp Glu Lys Phe Glu Gly Leu Ala Phe Phe Gly
305                 310                 315                 320

Gly Ile Lys Lys Asn
                325
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<210> 12
<211> 1071
<212> DNA
<213> Lutzomyia longipalpis

<400> 12
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ctgatatgga caaaaaatcc atcgcgagtg acaaaaccac ctttaacagc gtcctaaaga 180

tcgatgaatt gcgccacaac acaaaaacgg atcaatacat ttatgtgcgt agtcgagtga 240

agaagcccgt ttccacgagg tatgggttca aaggacgcgg tgcggaattg tcggaaattg 300

ttgtcttcaa caataaactt tacacagttg atgataaatc tggaattacg ttccgcataa 360

cgaaagacgg aaaactcttc ccgtgggtta ttctcgcaga tgccgatgga cagcgacccg 420

atggctttaa gggtgaatgg gctacaatta aggatgatac aatctatgtt ggatctacgg 480

ggatgctcaa gttcacttca tccctttggg tgaagaagat cacgaaagat ggcgttgtta 540

cgagtcacga ttggactgat aaataccgaa agattctcaa agctctaaac atgccaaatg 600

gttttgtctg gcatgaggct gttacgtggt ctccattcag gaagcaatgg gtcttcatgc 660

cgagaaagtg ctcaaggcat cccttctcac aggaactcga agaacgcaca gggtgcaata 720

aaatagtgac ggcagatgag aatttcaacg acattcaagt tattcacatt caagatcagc 780

catataattt agcttctggt ttctcttcct tccgctttat tcctggtacg aaaaatgaaa 840

gacttctcgc cttgaggaca gtagagcagg aagatcaggt taaaacttgg gctgtggtca 900

tggatatgaa aggaacagtt ctgatgtacg aaaaggaact ttatgacgaa aaattcgaag 960

gtttagcatt ctttggtggt attaaaaaga attaatttgt tccagaagct tttagatgaa 1020

ataataaatt ttatttcatt ttaaaaaaaa aaaaaaaaaa aaaaaaaaaa a 1071

<210> 13
<211> 160
<212> PRT
<213> Lutzomyia longipalpis

<400> 13

Met Ala Leu Lys Phe Leu Pro Val Leu Leu Leu Ser Cys Phe Ala Met
1 5 10 15

Ser Thr Ala Leu Gln Val Thr Glu Lys Glu Leu Ser Asp Gly Lys Lys
20 25 30

Ile Phe Ile Ser Lys Val Glu Leu Asn Trp Phe Glu Ala Leu Asp Phe
35 40 45

Cys Ile His Arg Gly Leu Thr Leu Leu Ser Ile Lys Ser Ala Lys Glu
50 55 60

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Asn Val Asp Val Thr Lys Ala Ile Arg Ala Glu Leu Asn Phe Asp Ser
65                  70                  75                  80

Lys Lys Leu Ala His Val Trp Thr Gly Gly Ile Arg His Ser Gln Asp
                85                  90                  95

Lys Tyr Phe Arg Trp Ile Asn Asp Gly Thr Lys Val Val Lys Arg Val
            100                 105                 110

Tyr Thr Asn Trp Phe Thr Gly Glu Pro Asn Asn Gly Tyr Trp Lys Asp
        115                 120                 125

Glu Phe Cys Leu Glu Ile Tyr Tyr Lys Thr Glu Glu Gly Lys Trp Asn
    130                 135                 140

Asp Asp Lys Cys His Val Lys His His Phe Val Cys Gln Glu Lys Lys
145                 150                 155                 160
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<210> 14
<211> 648
<212> DNA
<213> Lutzomyia longipalpis

<400> 14
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tctaagctgc ttcgcaatga gcacggcact acaagttact gagaaggaac tttctgatgg 180

gaaaaagatc ttcatctcca aagttgagct aaactggttc gaagctcttg atttctgtat 240

ccatcgtggt cttacgttgc tctcaattaa atccgccaag gaaaatgtag acgtaacaaa 300

agcaattcgg gctgaattga attttgattc aaagaaattg gctcatgtgt ggactggagg 360

tattcgccat agtcaagata agtatttccg ttggataaat gatggaacta aagttgttaa 420

acgagtctac accaattggt tcactggaga accaaataat ggttactgga aggatgaatt 480

ttgtctggaa atttactata aaaccgaaga agggaagtgg aatgatgata aatgtcacgt 540

gaagcatcat tttgtatgtc aagaaaagaa ataaattgat tgattttgtt tgctgatttg 600

cagttcagaa ttgaaaagcc aaaaaaaaaa aaaaaaaaaa aaaaaaaa 648

<210> 15
<211> 301
<212> PRT
<213> Lutzomyia longipalpis
<400> 15

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Met Asn Ser Ile Asn Phe Leu Ser Ile Val Gly Leu Ile Ser Phe Gly
1               5                   10                  15
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Phe Ile Val Ala Val Lys Cys Asp Gly Asp Glu Tyr Phe Ile Gly Lys
            20                  25                  30

Tyr Lys Glu Lys Asp Glu Thr Leu Phe Phe Ala Ser Tyr Gly Leu Lys
        35                  40                  45

Arg Asp Pro Cys Gln Ile Val Leu Gly Tyr Lys Cys Ser Asn Asn Gln
    50                  55                  60

Thr His Phe Val Leu Asn Phe Lys Thr Asn Lys Lys Ser Cys Ile Ser
65                  70                  75                  80

Ala Ile Lys Leu Thr Ser Tyr Pro Lys Ile Asn Gln Asn Ser Asp Leu
                85                  90                  95

Thr Lys Asn Leu Tyr Cys Gln Thr Gly Gly Ile Gly Thr Asp Asn Cys
            100                 105                 110

Lys Leu Val Phe Lys Lys Arg Lys Arg Gln Ile Ala Ala Asn Ile Glu
        115                 120                 125

Ile Tyr Gly Ile Pro Ala Lys Lys Cys Ser Phe Lys Asp Arg Tyr Ile
    130                 135                 140

Gly Ala Asp Pro Leu His Val Asp Ser Tyr Gly Leu Pro Tyr Gln Phe
145                 150                 155                 160

Asp Gln Glu His Gly Trp Asn Val Glu Arg Tyr Asn Ile Phe Lys Asp
                165                 170                 175

Thr Arg Phe Ser Thr Glu Val Phe Tyr His Lys Asn Gly Leu Phe Asn
            180                 185                 190

Thr Gln Ile Thr Tyr Leu Ala Glu Glu Asp Ser Phe Ser Glu Ala Arg
        195                 200                 205

Glu Ile Thr Ala Lys Asp Ile Lys Lys Lys Phe Ser Ile Ile Leu Pro
    210                 215                 220

Asn Glu Glu Tyr Lys Arg Ile Ser Phe Leu Asp Val Tyr Trp Phe Gln
225                 230                 235                 240

Glu Thr Met Arg Lys Lys Pro Lys Tyr Pro Tyr Ile His Tyr Asn Gly
                245                 250                 255
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Glu Cys Ser Asn Glu Asn Lys Thr Cys Glu Leu Val Phe Asp Thr Asp
260 265 270

Glu Leu Met Thr Tyr Ala Leu Val Lys Val Phe Thr Asn Pro Glu Ser
275 280 285

Asp Gly Ser Arg Leu Lys Glu Glu Asp Leu Gly Arg Gly
290 295 300

<210> 16
<211> 1021
<212> DNA
<213> Lutzomyia longipalpis

<400> 16
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ttcctatcaa tagttggttt aatcagtttt ggattcattg ttgcagtaaa gtgtgatggt 120

gatgaatatt tcattggaaa atacaaagaa aaagatgaga cactgttttt tgcaagctac 180

ggcctaaaga gggatccttg ccaaattgtc ttaggctaca aatgctcaaa caatcaaacc 240

cactttgtgc ttaattttaa aaccaataag aaatcctgca tatcagcaat taagctgact 300

tcttacccaa aaatcaatca aaactcggat ttaactaaaa atctctactg ccaaactgga 360

ggaataggaa cagataactg caaacttgtc ttcaagaaac gtaaaagaca aatagcagct 420

aatattgaaa tctacggcat tccagcgaag aaatgttcct tcaaggatcg ttacattgga 480

gctgatccac tccacgtcga ttcctatggg cttccgtatc agtttgatca ggaacatgga 540

tggaatgtgg aacgatataa cattttcaaa gacacaagat tttccacaga agttttctac 600

cacaaaaatg gtttatttaa cacccaaata acttatttgg ctgaagaaga ttccttctct 660

gaagctcgag agattactgc gaaggatatt aagaagaagt tttcaattat tttgcccaat 720

gaagagtata agaggattag tttcttggac gtttattggt tccaggagac tatgcgaaaa 780

aagcctaaat atccctacat tcactacaat ggagaatgca gcaatgagaa taaaacttgt 840

gaacttgtct ttgacaccga tgaactaatg acctacgccc ttgttaaagt ctttactaat 900

cctgagagtg atggatctag gctcaaagaa gaggatttgg gaagaggata aatcttctta 960

ataaaaaaaa gttctgtaag aaaatattgt tcaataaatt aaaaaaaaaa aaaaaaaaaa 1020

a 1021

<210> 17
<211> 161
<212> PRT
<213> Lutzomyia longipalpis

<400> 17

Met Ala Phe Ser Asn Thr Leu Phe Val Leu Phe Val Ser Phe Leu Thr
1 5 10 15

Phe Cys Gly Ala Asp Gln Thr Leu Ile Glu Lys Glu Leu Thr Gly Arg
20 25 30

Thr Val Tyr Ile Ser Lys Ile Lys Leu Asn Trp Asn Asp Ala Phe Asp
35 40 45

Tyr Cys Ile Arg Asn Gly Leu Thr Phe Ala Lys Ile Lys Ser Ala Glu
50 55 60

Glu Asn Thr Glu Leu Ser Glu Lys Leu Lys Thr Val Ile Arg Thr Glu
65 70 75 80

Glu Phe Gln Val Trp Ile Gly Gly Ile Glu His His Gln Asp Ser Ser
85 90 95

Phe Arg Trp Val Ser Asp Ser Gln Pro Ile Thr Asn Lys Leu Gly Tyr
100 105 110

115 120 125

Glu Tyr Cys Leu Glu Ile Leu Phe Arg Lys Glu Asp Gly Lys Trp Asn
130 135 140

Asp Phe Pro Cys Ser Ala Arg His His Phe Val Cys Glu Lys Arg Thr
145 150 155 160

Lys

<210> 18
<211> 586
<212> DNA
<213> Lutzomyia longipalpis

<400> 18
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agtttttaa cgttttgtgg cgctgatcag acacttattg agaaggaatt aaccggaaga 120

actgtttata tctccaaaat taagctaaat tggaacgatg ccttcgatta ctgcatccgc 180

aatggcctca cctttgctaa gattaaatca gctgaagaaa acaccgaact gagtgagaaa 240

ctcaagacag tcattcgtac ggaggagttt caagtttgga ttggaggcat tgaacatcat 300

caagacagtt ccttccgctg ggtaagcgac tcccaaccaa taaccaacaa attgggctac 360

aaatacacaa actggaatac cggagagccc acaaattacc aaaacaacga atattgcttg 420

gaaatattat tccggaagga agatggaaaa tggaatgatt ttccctgcag tgcaagacat 480

cattttgttt gtgaaaaaag aacaaaataa aatgaagaaa atgtgatttt cctttggttg 540

aagaataaaa ttctgttgaa aaaaaaaaaa aaaaaaaaaa aaaaaa 586

<210> 19
<211> 105
<212> PRT
<213> Lutzomyia longipalpis

<400> 19

Met Gln Asn Phe Leu Leu Val Ser Leu Ala Leu Ala Ala Leu Met Leu
1 5 10 15

Cys Ala Glu Ala Lys Pro Tyr Asp Phe Pro Leu Tyr Gln Asp Leu Ile
20 25 30

Gln Gly Val Ile Gln Arg Glu Ser Gln Ala Glu Arg Glu Lys Arg Ser
35 40 45

Pro Asn Glu Asp Tyr Glu Lys Gln Phe Gly Asp Ile Val Asp Gln Ile
50 55 60

Lys Glu Ile Ser Phe Asn Val Met Lys Met Pro His Phe Gly Ser Ser
65 70 75 80

Asp Asp Asn Arg Asp Asp Gly Glu Tyr Val Asp His His Tyr Gly Asp
85 90 95

Glu Asp Asp Arg Asp Tyr Asp His Tyr
100 105

<210> 20
<211> 457
<212> DNA
<213> Lutzomyia longipalpis

<400> 20
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gctgccttaa tgctatgtgc cgaagcaaag ccgtacgatt ttccgcttta tcaggactta 120

attcagggcg ttattcagcg cgaaagtcaa gctgagaggg agaagagaag ccccaatgag 180

gactatgaga agcaatttgg ggatattgtt gatcaaatta aggaaattag tttcaatgtc 240

atgaaaatgc cccattttgg aagctctgat gataatcgtg atgatggcga gtacgttgat 300

catcattatg gtgacgaaga tgatcgtgat tatgatcatt actaaatact acttgctcct 360

gctgaatgac ttgaaggaat catttttttg caaaaatatc catcaaatta ttgaattaat 420

aaagttgcaa aaaaaaaaaa aaaaaaaaaa aaaaaaa 457

<210> 21
<211> 157
<212> PRT
<213> Lutzomyia longipalpis

<400> 21

Met Lys Phe Tyr Ile Phe Gly Val Phe Leu Val Ser Phe Leu Ala Leu
1 5 10 15

Cys Asn Ala Glu Asp Tyr Asp Lys Val Lys Leu Thr Gly Arg Thr Val
20 25 30

Tyr Ile Ser Arg Ser Lys Ala Pro Trp Phe Thr Ala Leu Asp Asn Cys
35 40 45

Asn Arg Arg Phe Thr Phe Ala Met Ile Lys Ser Gln Lys Glu Asn Glu
50 55 60

Glu Leu Thr Asn Ala Leu Leu Ser Val Ile Lys Ser Asp Glu Glu Asn
65 70 75 80

Val Trp Ile Gly Gly Leu Arg His Asp Leu Asp Asp Tyr Phe Arg Trp
85 90 95

Ile Ser Phe Gly Thr Ala Leu Ser Lys Thr Ser Tyr Thr Asn Trp Ala
100 105 110

Pro Lys Glu Pro Thr Gly Arg Pro His Arg Thr Gln Asn Asp Glu Phe
115 120 125

130 135 140

Cys Trp Arg Lys Arg Leu Tyr Val Cys Glu Lys Arg Asp
145 150 155

<210> 22
<211> 596
<212> DNA
<213> Lutzomyia longipalpis

<400> 22
gtttaaggaa tttctttcat ctcagtcttc gattttcttt aaacaaataa tgaagtttta 60

tatttttgga gttttcctgg tgagctttct tgcattatgc aatgctgagg attatgataa 120

agtaaaactt actggaagaa ctgtttacat ctccagatca aaggctccgt ggttcacagc 180

tttagacaat tgtaatcgtt tacgcttcac cttcgccatg atcaagtctc agaaggagaa 240

tgaagagcta acaaatgcgc ttttaagtgt aattaaatct gacgaagaaa atgtttggat 300

tggaggtctt aggcacgatc tggatgacta cttccgttgg attagttttg gaactgcatt 360

gtcaaagact tcgtacacca attgggcccc aaaggaaccc acaggaaggc cccatagaac 420

tcaaaatgat gaattctgca tgcaaatgtc tttcaaagat ggtggcaaat ggagtgataa 480

cacctgttgg cgtaaacgtt tgtacgtttg tgaaaagcgt gattaaataa aggaacactg 540

ccaatgaata ttgggcaatt tgagagaaat taaattaaaa aaaaaaaaaa aaaaaa 596

<210> 23
<211> 412
<212> PRT
<213> Lutzomyia longipalpis

<400> 23

Met Arg Phe Phe Phe Val Phe Leu Ala Ile Val Leu Phe Gln Gly Ile
1 5 10 15

His Gly Ala Tyr Val Glu Ile Gly Tyr Ser Leu Arg Asn Ile Thr Phe
20 25 30

Asp Gly Leu Asp Thr Asp Asp Tyr Asn Pro Lys Phe Asn Ile Pro Thr
35 40 45

Gly Leu Ala Val Asp Pro Glu Gly Tyr Arg Leu Phe Ile Ala Ile Pro
50 55 60

Arg Arg Lys Pro Lys Val Pro Tyr Thr Val Ala Glu Leu Asn Met Val
65 70 75 80

Met Asn Pro Gly Phe Pro Val Glu Arg Ala Pro Ser Phe Glu Lys Phe
85 90 95

Lys Lys Phe Asn Gly Glu Gly Lys Lys Asp Leu Val Asn Val Tyr Gln
100 105 110

Pro Val Ile Asp Asp Cys Arg Arg Leu Trp Val Leu Asp Ile Gly Lys
115 120 125

Val Glu Tyr Thr Gly Gly Asp Ala Asp Gln Tyr Pro Lys Gly Lys Pro
130 135 140

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Thr Leu Ile Ala Tyr Asp Leu Lys Lys Asp His Thr Pro Glu Ile His
145                 150                 155                 160

Arg Phe Glu Ile Pro Asp Asp Leu Tyr Ser Ser Gln Val Glu Phe Gly
                165                 170                 175

Gly Phe Ala Val Asp Val Val Asn Thr Lys Gly Asp Cys Thr Glu Ser
            180                 185                 190

Phe Val Tyr Leu Thr Asn Phe Lys Asp Asn Ser Leu Ile Val Tyr Asp
        195                 200                 205

Glu Thr Gln Lys Lys Ala Trp Lys Phe Thr Asp Lys Thr Phe Glu Ala
    210                 215                 220

225                 230                 235                 240

Lys Val Gly Leu Phe Gly Ile Ala Leu Gly Asp Arg Asp Glu Met Gly
                245                 250                 255

His Arg Pro Ala Cys Tyr Ile Ala Gly Ser Ser Thr Lys Val Tyr Ser
            260                 265                 270

Val Asn Thr Lys Glu Leu Lys Thr Glu Asn Gly Gln Leu Asn Pro Gln
        275                 280                 285

Leu His Gly Asp Arg Gly Lys Tyr Thr Asp Ala Ile Ala Leu Ala Tyr
    290                 295                 300

Asp Pro Glu His Lys Val Leu Tyr Phe Ala Glu Ser Asp Ser Arg Gln
305                 310                 315                 320

Val Ser Cys Trp Asn Val Asn Met Glu Leu Lys Pro Asp Asn Thr Asp
                325                 330                 335

Val Ile Phe Ser Ser Ala Arg Phe Thr Phe Gly Thr Asp Ile Leu Val
            340                 345                 350

Asp Ser Lys Gly Met Leu Trp Ile Met Ala Asn Gly His Pro Pro Val
        355                 360                 365

Glu Asp Gln Glu Lys Ile Trp Lys Met Arg Phe Val Asn Arg Lys Ile
    370                 375                 380

Arg Ile Met Lys Val Asp Thr Glu Arg Val Phe Lys Tyr Ser Arg Cys
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385 390 395 400

Asn Pro Asn Tyr Lys Pro Pro Lys Glu Ile Glu Val
405 410

<210> 24
<211> 1409
<212> DNA
<213> Lutzomyia longipalpis

<400> 24
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ccttttcaa gggatccacg gagcttatgt ggaaatagga tattctctga gaaatattac 120

attcgatgga ttggatacag atgactacaa tccaaagttc aacattccaa cgggtttggc 180

agttgatccc gaaggatata ggctcttcat agccatccca aggagaaagc caaaggttcc 240

ctacactgtg gctgaactga atatggtcat gaatcccgga tttcccgtcg agagagctcc 300

gagctttgag aaattcaaaa aattcaatgg cgagggcaaa aaggatcttg ttaatgtgta 360

tcagccagtc attgatgatt gtcgtcgtct ttgggtgctt gacattggga aggtggaata 420

caccggtggt gatgctgatc aatatcccaa aggaaagcct accctaattg cctacgacct 480

caagaaggat catactccgg aaattcatcg atttgaaatt ccagacgatc tctatagctc 540

acaagttgaa tttggtggat ttgccgttga tgttgttaac acgaaaggag actgtacgga 600

gtcatttgtc tacctgacca atttcaagga taactctcta attgtctacg atgagacaca 660

aaagaaagct tggaaattca cagataaaac atttgaagct gataaggaat ccacgttctc 720

ctactcggga gaggaacaaa tgaagtacaa agtcggtctt tttgggatag ctctgggtga 780

tagggatgaa atggggcatc gtcctgcctg ctacatcgct gggagtagca ccaaagtcta 840

cagtgttaac actaaagaac tcaaaacaga gaatggtcag ttaaatcctc agcttcacgg 900

tgatcgtgga aagtacacag atgcaattgc cctagcctac gatcctgagc ataaagtcct 960

ctactttgct gaatccgaca gcaggcaggt gtcctgttgg aatgtaaata tggagctaaa 1020

accagacaat acggatgtga tcttctctag tgcccgtttt acttttggaa cggatatttt 1080

ggttgatagc aagggaatgc tgtggataat ggctaatgga catccaccag tagaggatca 1140

agagaagatt tggaagatga gattcgtaaa ccggaagatc cgtattatga aagtggatac 1200

ggaacgtgtt ttcaaatatt cacgctgcaa tccaaattat aagcccccaa aggaaattga 1260

agtttgagac acaggaaaaa gctcaatttt caacaagaat ttgatcttaa tctgaatacc 1320

ctaaagtctg tcaaagaatt tcatattatt tgaaaaccaa taaattgatt aattttccga 1380

aaaaaaaaaa aaaaaaaaaa aaaaaaaaa 1409

<210> 25
<211> 295
<212> PRT
<213> Lutzomyia longipalpis

<400> 25

Met Ile Lys Glu Val Phe Ser Leu Ala Leu Leu Val Ala Leu Ala Gln
1 5 10 15

Cys Ala Asn Glu Ile Pro Ile Asn Arg Gln Gly Lys Asp Tyr Pro Val
20 25 30

Pro Ile Ile Asp Pro Asn Lys Ser Ser Ser Asp Asp Tyr Phe Asp Asp
35 40 45

Arg Phe Tyr Pro Asp Ile Asp Asp Glu Gly Ile Ala Glu Ala Pro Lys
50 55 60

Asp Asn Arg Gly Lys Ser Arg Gly Gly Gly Ala Ala Gly Ala Arg Glu
65 70 75 80

Gly Arg Leu Gly Thr Asn Gly Ala Lys Pro Gly Gln Gly Gly Thr Arg
85 90 95

Pro Gly Gln Gly Gly Thr Arg Pro Gly Gln Gly Gly Thr Arg Pro Gly
100 105 110

Gln Gly Gly Thr Arg Pro Gly Gln Gly Gly Thr Arg Pro Gly Gln Gly
115 120 125

Arg Thr Lys Pro Ala Gln Gly Thr Thr Arg Pro Ala Gln Gly Thr Arg
130 135 140

Asn Pro Gly Ser Val Gly Thr Lys Glu Ala Gln Asp Ala Ser Lys Gln
145 150 155 160

Gly Gln Gly Lys Arg Arg Pro Gly Gln Val Gly Gly Lys Arg Pro Gly
165 170 175

Gln Ala Asn Ala Pro Asn Ala Gly Thr Arg Lys Gln Gln Lys Gly Ser
180 185 190

Arg Gly Val Gly Arg Pro Asp Leu Ser Arg Tyr Lys Asp Ala Pro Ala
195 200 205

Lys Phe Val Phe Lys Ser Pro Asp Phe Ser Gly Glu Gly Lys Thr Pro

210 215 220

Thr Val Asn Tyr Phe Arg Thr Lys Lys Lys Glu His Ile Val Thr Arg
225 230 235 240

Gly Ser Pro Asn Asp Glu Phe Val Leu Glu Ile Leu Asp Gly Asp Pro
245 250 255

Thr Gly Leu Gly Leu Lys Ser Glu Thr Ile Gly Lys Asp Thr Arg Leu
260 265 270

Val Leu Glu Asn Pro Asn Gly Asn Ser Ile Val Ala Arg Val Lys Ile
275 280 285

Tyr Lys Asn Gly Tyr Ser Gly
290 295

<210> 26
<211> 989
<212> DNA
<213> Lutzomyia longipalpis

<400> 26
actaaagcgt ctcaccgaaa tcagggaaaa tgattaagga agttttctct ctggctctac 60

ttgtggcctt ggcacagtgt gctaatgaaa tccctattaa tcgtcagggg aaagattatc 120

cagttccgat cattgatcca ataaaatcat cttcggatga ttatttcgat gatcgcttct 180

accctgatat tgatgatgag ggcatagctg aggctcctaa ggataatagg ggaaaatccc 240

gtggtggtgg tgcggctggc gcaagagaag gtaggttagg tacgaatggg gctaaaccgg 300

gtcagggtgg aactagacca ggacagggtg gaactaggcc aggacagggt ggaactaggc 360

caggtcaggg tggaactagg ccaggtcagg gtggaactag acctgggcaa ggtagaacta 420

agcctgctca gggaactact aggccagctc agggaactag aaatccagga tcggttggta 480

cgaaagaagc ccaggatgcg tcaaaacaag gtcaaggtaa aagaaggcca gggcaagttg 540

gtggtaaaag accaggacaa gcaaatgctc ctaatgcagg cactagaaag caacagaaag 600

gcagtagagg cgttggaagg cctgatctat cgcgctacaa agatgcccct gctaaattcg 660

ttttcaaatc tcccgatttc agtggagaag gcaaaactcc aactgtaaat tactttagaa 720

cgaagaagaa ggagcacatt gtgacccgtg gtagtcctaa tgatgaattt gttctggaga 780

ttctcgatgg ggatccaact gggcttggac taaagagtga aaccataggc aaagatacgc 840

gtttagtgct ggagaatcct aatggaaatt ccatcgtggc tcgtgttaag atctacaaga 900

acggttattc aggatgaaga agaaatcctt tgatttcccc ccccccctct tcctttaaaa 960

ttcaacataa taaaaaaaaa aaaaaaaaa 989

<210> 27
<211> 148
<212> PRT
<213> Lutzomyia longipalpis

<400> 27

Met Asn Ser Val Asn Thr Leu Ile Leu Thr Leu Leu Phe Ala Ile Phe
1 5 10 15

Leu Leu Val Lys Arg Ser Gln Ala Phe Leu Pro Ser Asp Pro Ser Ile
20 25 30

Cys Val Lys Asn Leu Val Leu Asp Thr Gly Arg Thr Cys Glu Glu Ser
35 40 45

Glu Tyr Phe Pro Asp Ile Lys Asn Val Lys Asn Gly Lys Arg Val Tyr
50 55 60

Ile Val Cys Thr Asp Ser Asp Ala Val Asp Tyr Lys Phe Tyr Ile Cys
65 70 75 80

Phe Asp Met Asn Arg Leu Ser Gly Pro Pro Tyr Pro Glu Glu Glu Ile
85 90 95

Leu Arg Glu Ser Thr Val Thr Tyr Ala Gln Ile Tyr Glu Leu Met Thr
100 105 110

Thr Glu Thr Thr Glu Thr Lys Lys Pro Lys Lys Lys Pro Lys Asn Ser
115 120 125

Lys Thr Asp Asp Pro Pro Ala Ile Arg Pro Gly Phe Ser Phe Arg Asn
130 135 140

Ser Ile Ser Val
145

<210> 28
<211> 826
<212> DNA
<213> Lutzomyia longipalpis

<400> 28
gtcttttcct gagtgtttca ttaacaaaat gaattcagta aacactttaa ttttaactct 60

tctatttgca attttttttat tagtgaaaag gtctcaggct tttcttccat ctgacccaag 120

tatctgtgtt aaaaatttag tattggatac aggaaggact tgtgaggaaa gtgaatattt 180

tccggatatc aagaacgtta aaaatggaaa aagagtttac attgtctgca ctgattcaga 240

tgcagttgat tataaatttt atatttgttt cgatatgaat cgtctttctg gaccaccgta 300

tcctgaggaa gaaatccttc gtgaatcaac ggtaacttat gcccaaattt atgagctgat 360

gactacggaa accactgaaa ccaaaaagcc aaaaaagaaa ccaaagaatt caaaaacgga 420

cccagaccct ccagcaattc gtccaggatt ttcatttaga aattcaattt ctgtttaatt 480

ttacaattta ttttgaaaga aaaatgatat ttcgaaatat tctatacaaa aaaacaacag 540

ttataaaacg aaaattcaat catttcaatg agaaaactta gtcttgagta aggtttattc 600

accacccgac gccacgctat ggtgaataat tttctttatt caccacatca aaatgacggc 660

ttataaactt caacaaatag tttggaaaat acatttctaa ctaatgcaat gtttacttaa 720

aatcacttta caaattcacg catttgagat gcaacaaata tatacaattc aacgatataa 780

actttccaca aggaaaactt tcaaccaaaa aaaaaaaaaa aaaaaa 826

<210> 29
<211> 397
<212> PRT
<213> Lutzomyia longipalpis

<400> 29

Met Lys Leu Phe Phe Phe Leu Tyr Thr Phe Gly Leu Val Gln Thr Ile
1 5 10 15

Phe Gly Val Glu Ile Lys Gln Gly Phe Lys Trp Asn Lys Ile Leu Tyr
20 25 30

Glu Gly Asp Thr Ser Glu Asn Phe Asn Pro Asp Asn Asn Ile Leu Thr
35 40 45

Ala Phe Ala Tyr Asp Pro Glu Ser Gln Lys Leu Phe Leu Thr Val Pro
50 55 60

Arg Lys Tyr Pro Glu Thr Met Tyr Thr Leu Ala Glu Val Asp Thr Glu
65 70 75 80

Lys Asn Ser Phe Glu Ser Gly Asp Thr Ser Pro Leu Leu Gly Lys Phe
85 90 95

Ser Gly His Glu Thr Gly Lys Glu Leu Thr Ser Val Tyr Gln Pro Val
100 105 110

Ile Asp Glu Cys His Arg Leu Trp Val Val Asp Val Gly Ser Val Glu
115 120 125

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Arg Asn Ser Asp Gly Thr Glu Gly Gln Pro Glu His Asn Pro Thr Leu
    130                 135                 140

Val Ala Tyr Asp Leu Lys Glu Ala Asn Tyr Pro Glu Val Ile Arg Tyr
145                 150                 155                 160

Thr Phe Pro Asp Asn Ser Ile Glu Lys Pro Thr Phe Leu Gly Gly Phe
                165                 170                 175

Ala Val Asp Val Val Lys Pro Asp Glu Cys Ser Glu Thr Phe Val Tyr
            180                 185                 190

Ile Thr Asn Phe Leu Thr Asn Ala Leu Ile Val Tyr Asp His Lys Asn
        195                 200                 205

Lys Asp Ser Trp Thr Val Gln Asp Ser Thr Phe Gly Pro Asp Lys Lys
    210                 215                 220

Ser Lys Phe Asp His Asp Gly Gln Gln Tyr Glu Tyr Glu Ala Gly Ile
225                 230                 235                 240

Phe Gly Ile Thr Leu Gly Glu Arg Asp Asn Glu Gly Asn Arg Gln Ala
                245                 250                 255

Tyr Tyr Leu Val Ala Ser Ser Thr Lys Leu His Ser Ile Asn Thr Lys
            260                 265                 270

Glu Leu Lys Gln Lys Gly Ser Lys Val Asn Ala Asn Tyr Leu Gly Asp
        275                 280                 285

Arg Gly Glu Ser Thr Asp Ala Ile Gly Leu Val Tyr Asp Pro Lys Thr
    290                 295                 300

Lys Thr Ile Phe Phe Val Glu Ser Asn Ser Lys Arg Val Ser Cys Trp
305                 310                 315                 320

Asn Thr Gln Glu Thr Leu Asn Lys Asp Lys Ile Asp Val Ile Tyr His
                325                 330                 335

Asn Ala Asp Phe Ser Phe Gly Thr Asp Ile Ser Ile Asp Ser Gln Asp
            340                 345                 350

Asn Leu Trp Phe Leu Ala Asn Gly Leu Pro Pro Leu Glu Asn Ser Asp
        355                 360                 365
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Lys Phe Val Phe Thr Lys Pro Arg Tyr Gln Ile Phe Lys Val Asn Ile
370 375 380

Gln Glu Ala Ile Ala Gly Thr Lys Cys Glu Lys Asn Leu
385 390 395

<210> 30
<211> 1325
<212> DNA
<213> Lutzomyia longipalpis

<400> 30
atcattcaaa aggcagcagc acaatgaagt tatttttctt tctttacact tttggtctag 60

tccaaacgat ttttggagta gaaattaaac aaggatttaa atggaataaa atcctttatg 120

agggcgatac atcagaaaac ttcaatccag ataacaacat ccttacggct tttgcgtacg 180

atcctgagag tcagaaactc ttcctaactg tcccgaggaa atatcccgaa actatgtaca 240

ctttggcaga agttgatact gagaaaaatt cttttgaatc gggagatact tccccgctcc 300

ttggaaaatt cagtggtcat gaaactggga aagaacttac atcagtttat cagccagtta 360

tcgatgaatg tcatcgtctt tgggttgttg atgttggatc agtagaacgt aactcagacg 420

gcacagaagg tcagccagaa cataatccta cccttgtggc gtacgatctc aaagaagcca 480

actatcctga agttattcgt tacacgtttc ccgataattc cattgagaag cccacatttc 540

tgggtggatt tgccgttgat gttgtaaagc cggatgaatg cagtgaaact tttgtctaca 600

tcacaaactt cctcaccaac gccctcatag tatacgatca taagaataag gactcctgga 660

agtatgaata cgaagcagga atcttcggga ttacccttgg agagagagat aacgaaggaa 780

atcgtcaagc gtactattta gtagcaagta gtaccaaact tcacagcatc aacaccaaag 840

aactgaagca aaaaggaagc aaagttaatg caaattattt gggagatcgt ggtgaatcca 900

ccgatgccat aggcttagtt tacgatccaa aaaccaaaac tatcttcttc gttgagtcaa 960

atagcaaaag agtatcatgc tggaataccc aggaaacact aaacaaggat aaaattgatg 1020

taatctatca caatgcagac ttttcctttg gaacagatat atcgattgat agtcaggata 1080

atttgtggtt cctagcaaat ggacttccac ctctggaaaa ttctgataaa tttgtcttta 1140

caaagccacg ttatcaaata ttcaaagtca acattcaaga agcaattgct ggaactaaat 1200

gtgaaaagaa tctttaacaa atgaaacttt gtagaaaaat acataatatc tgaataaaaa 1260

gtcataaatg taccataaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1320

aaaaa 1325

<210> 31
<211> 350
<212> PRT
<213> Lutzomyia longipalpis

<400> 31

Met Thr Phe Leu Ile Ile Leu Gly Ala Phe Leu Leu Val Gln Ile Ile
1 5 10 15

Thr Ala Ser Ala Leu Gly Leu Pro Glu Gln Phe Lys Gly Leu Glu Asp
20 25 30

Leu Pro Lys Lys Pro Leu Ala Glu Thr Tyr Tyr His Glu Gly Leu Asn
35 40 45

Asp Gly Lys Thr Asp Glu Met Val Asp Ile Phe Lys Ser Leu Ser Asp
50 55 60

Glu Phe Lys Phe Ser Asp Glu Asn Leu Asp Val Gly Glu Glu Lys Asn
65 70 75 80

Tyr Lys Lys Arg Asp Ile Thr Gln Asn Ser Val Ala Arg Asn Phe Leu
85 90 95

Ser Asn Val Lys Gly Ile Pro Ser Met Pro Ser Leu Pro Ser Met Pro
100 105 110

Ser Met Pro Ser Ile Pro Ser Leu Trp Ser Ser Gln Thr Gln Ala Ala
115 120 125

Pro Asn Thr Ala Leu Ala Leu Pro Glu Ser Asp Tyr Ser Leu Leu Asp
130 135 140

Met Pro Asn Ile Val Lys Asn Phe Leu Lys Glu Thr Arg Asp Leu Tyr
145 150 155 160

Asn Asp Val Gly Ala Phe Leu Lys Ala Ile Thr Glu Ala Leu Thr Asn
165 170 175

Arg Ser Ser Ser Ser Gln Leu Leu Ser Ser Pro Met Val Ser Thr Asn
180 185 190

Lys Thr Lys Glu Phe Ile Arg Asn Glu Ile Gln Lys Val Arg Lys Val
195 200 205

Arg Asn Phe Val Gln Glu Thr Leu Gln Lys Ile Arg Asp Ile Ser Ala
210 215 220

Ala Ile Ala Lys Lys Val Lys Ser Ser Glu Cys Leu Ser Asn Leu Thr
225 230 235 240

Asp Ile Lys Gly Leu Val Ser Asp Gly Ile Asn Cys Leu Lys Glu Lys
245 250 255

Phe Asn Asp Gly Lys Arg Ile Ile Leu Gln Leu Tyr Asn Asn Leu Leu
260 265 270

Lys Gly Leu Lys Ile Pro Asn Asp Leu Met Val Glu Leu Lys Lys Cys
275 280 285

Asp Thr Asn Gln Asn Asn Thr Leu Gly Arg Ile Ile Cys Tyr Phe Leu
290 295 300

Thr Pro Leu Gln Leu Glu Lys Glu Gln Ile Leu Leu Pro Val Glu Phe
305 310 315 320

Ile Lys Arg Ile Leu Glu Leu Thr His Tyr Phe Ser Thr Met Lys Glu
325 330 335

Asp Leu Ile Asn Cys Gly Ile Thr Thr Ile Ala Ser Ile Thr
340 345 350

<210> 32
<211> 1275
<212> DNA
<213> Lutzomyia longipalpis

<400> 32
ctttaaagca aaaattttgt gggaaaggaa gttacccgga gatgacgttt ctaattatac 60

ttggtgcatt tctccttgtt caaattatta cagcttcagc tttaggattg cctgaacagt 120

ttaaaggttt agaggattta cctaaaaaac ctttggcaga gacttattat cacgaaggat 180

tgaatgatgg aaaaacggat gaaatggtgg atatttttaa aagtcttagc gatgaattta 240

aattcagtga tgaaaattta gatgttggtg aggagaaaaa ttacaagaaa cgtgatataa 300

cccaaaattc agtggcaagg aacttcctat caaacgtaaa gggaattcct tcaatgccat 360

cactcccttc aatgccttca atgccatcaa ttccttcact ttggtcaagt cagacacagg 420

cggcaccaaa taccgcactt gcccttcctg aatctgatta ttccccttcta gatatgccga 480

atattgtgaa aaatttccta aaggaaacaa gagacctcta taacgatgtt ggagcttttc 540

ttaaggcaat tacagaagct ttaacaaata gatcttcatc atctcaactt ctttcctccc 600

caatggtgag cacgaataaa accaaagaat ttattcggaa tgaaatacaa aaagtccgaa 660

aagtgagaaa tttcgtccag gaaactcttc agaaaatccg agacatttct gctgctattg 720

ccaaaaaggt aaaatcatca gaatgtctgt ccaatcttac ggacatcaaa ggacttgtat 780

cagacggaat taattgttta aaggaaaaat tcaatgatgg aaaacgaatt atcctgcaat 840

tgtacaataa tttactaaaa ggactcaaaa ttccaaatga cctaatggtt gaattgaaga 900

aatgtgatac aaatcaaaac aatactttgg gaagaataat ctgttatttt ttgacaccat 960

tgcaactgga aaaagaacaa attcttctac ctgtagaatt tataaagcgc attcttgaat 1020

taacccacta cttttccaca atgaaagaag atcttatcaa ctgtggcatc acaacgattg 1080

catccattac gtaaaaaatg gaaaaatgtg ccggtgaaat gcttgaaatc accaaagaaa 1140

tttcatcgca aataacagtt ccagaataac caaattttaa tgattacttc tcaaggaaaa 1200

tactaccaaa aggcattaat taaaacgatg ttttttataa acaatgtaag aaaaaaaaaa 1260

aaaaaaaaaa aaaaa 1275

<210> 33
<211> 60
<212> PRT
<213> Lutzomyia longipalpis

<400> 33

Met Leu Lys Ile Val Leu Phe Leu Ser Val Leu Ala Val Leu Val Ile
1 5 10 15

Cys Val Ala Ala Met Pro Gly Ser Asn Val Pro Trp His Ile Ser Arg
20 25 30

Glu Glu Leu Glu Lys Leu Arg Glu Ala Arg Lys Asn His Lys Ala Leu
35 40 45

Glu Lys Ala Ile Asp Glu Leu Ile Asp Lys Tyr Leu
50 55 60

<210> 34
<211> 413
<212> DNA
<213> Lutzomyia longipalpis

<400> 34
agttaatctt ctgtcaagct acaaaaatgc ttaaaatcgt tttatttcta tcagttttgg 60

ctgtattagt gatttgtgta gcagcaatgc caggatccaa tgttccttgg cacatttcac 120

gagaagagct tgagaagctt cgtgaagctc gaaagaatca caaggcactc gagaaggcaa 180

ttgatgaatt aattgacaaa tatctctgat tttgaagagc aaggaagagg aaataaacgg 240

ccgaggaagg attttcttta gagattcttc tttttattac ttcaaaccta acttcaaaat 300

cagtctgata ttttttttaat ttgaaaaaaa tattgaaaat tttaactatt tgtgaaattt 360

aaataaataa agaatgtcag aagcaaaaaa aaaaaaaaaa aaaaaaaaaa aaa 413

<210> 35
<211> 120
<212> PRT
<213> Lutzomyia longipalpis

<400> 35

Met Lys Phe Ser Cys Pro Val Phe Val Ala Ile Phe Leu Leu Cys Gly
1 5 10 15

Phe Tyr Arg Val Glu Gly Ser Ser Gln Cys Glu Glu Asp Leu Lys Glu
20 25 30

Glu Ala Glu Ala Phe Phe Lys Asp Cys Asn Glu Ala Lys Ala Asn Pro
35 40 45

Gly Glu Tyr Glu Asn Leu Thr Lys Glu Glu Met Phe Glu Glu Leu Lys
50 55 60

Glu Tyr Gly Val Ala Asp Thr Asp Met Glu Thr Val Tyr Lys Leu Val
65 70 75 80

Glu Glu Cys Trp Asn Glu Leu Thr Thr Thr Asp Cys Lys Arg Phe Leu
85 90 95

Glu Glu Ala Glu Cys Phe Lys Lys Lys Asn Ile Cys Lys Tyr Phe Pro
100 105 110

Asp Glu Val Lys Leu Lys Lys Lys
115 120

<210> 36
<211> 428
<212> DNA
<213> Lutzomyia longipalpis

<400> 36
aattttcacc atgaagtttt cttgcccagt tttcgttgca attttccttt tgtgcggatt 60

ttatcgtgtt gaggggtcat cacaatgtga agaagattta aaagaagaag ctgaagcttt 120

ctttaaggat tgcaatgaag caaaagccaa tcctggtgaa tacgagaatc tcaccaaaga 180

agaaatgttt gaagaattga aagaatatgg agttgctgac acagacatgg agacagttta 240

caaacttgtg gaagaatgtt ggaatgaatt aacaacaacg gattgtaaga gatttctcga 300

agaggctgaa tgcttcaaga agaagaatat ttgtaaatat ttcccagatg aagtgaaatt 360

gaagaagaaa taaattttta gcttgaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 420

aaaaaaaa 428

<210> 37
<211> 572
<212> PRT
<213> Lutzomyia longipalpis

<400> 37

Met Leu Phe Phe Leu Asn Phe Phe Val Leu Val Phe Ser Ile Glu Leu
1 5 10 15

Ala Leu Leu Thr Ala Ser Ala Ala Ala Glu Asp Gly Ser Tyr Glu Ile
20 25 30

Ile Ile Leu His Thr Asn Asp Met His Ala Arg Phe Asp Gln Thr Asn
35 40 45

Ala Gly Ser Asn Lys Cys Gln Glu Lys Asp Lys Ile Ala Ser Lys Cys
50 55 60

Tyr Gly Gly Phe Ala Arg Val Ser Thr Met Val Lys Lys Phe Arg Glu
65 70 75 80

Glu Asn Gly Ser Ser Val Leu Phe Leu Asn Ala Gly Asp Thr Tyr Thr
85 90 95

Gly Thr Pro Trp Phe Thr Leu Tyr Lys Glu Thr Ile Ala Thr Glu Met
100 105 110

Met Asn Ile Leu Arg Pro Asp Ala Ala Ser Leu Gly Asn His Glu Phe
115 120 125

Asp Lys Gly Val Glu Gly Leu Val Pro Phe Leu Asn Gly Val Thr Phe
130 135 140

Pro Ile Leu Thr Ala Asn Leu Asp Thr Ser Gln Glu Pro Thr Met Thr
145 150 155 160

Asn Ala Lys Asn Leu Lys Arg Ser Met Ile Phe Thr Val Ser Gly His
165 170 175

Arg Val Gly Val Ile Gly Tyr Leu Thr Pro Asp Thr Lys Phe Leu Ser
180 185 190

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Asp Val Gly Lys Val Asn Phe Ile Pro Glu Val Glu Ala Ile Asn Thr
        195                 200                 205

Glu Ala Gln Arg Leu Lys Lys Glu Glu Asn Ala Glu Ile Ile Ile Val
    210                 215                 220

Val Gly His Ser Gly Leu Ile Lys Asp Arg Glu Ile Ala Glu Lys Cys
225                 230                 235                 240

Pro Leu Val Asp Ile Ile Val Gly Gly His Ser His Thr Phe Leu Tyr
                245                 250                 255

Thr Gly Ser Gln Pro Asp Arg Glu Val Pro Val Asp Val Tyr Pro Val
            260                 265                 270

Val Val Thr Gln Ser Ser Gly Lys Lys Val Pro Ile Val Gln Ala Tyr
        275                 280                 285

Cys Phe Thr Lys Tyr Leu Gly Tyr Phe Lys Val Thr Ile Asn Gly Lys
    290                 295                 300

Gly Asn Val Val Gly Trp Thr Gly Gln Pro Ile Leu Leu Asn Asn Asn
305                 310                 315                 320

Ile Pro Gln Asp Gln Glu Val Leu Thr Ala Leu Glu Lys Tyr Arg Glu
                325                 330                 335

Arg Val Glu Asn Tyr Gly Asn Arg Val Ile Gly Val Ser Arg Val Ile
            340                 345                 350

Leu Asn Gly Gly His Thr Glu Cys Arg Phe His Glu Cys Asn Met Gly
        355                 360                 365

Asn Leu Ile Thr Asp Ala Phe Val Tyr Ala Asn Val Ile Ser Thr Pro
    370                 375                 380

Met Ser Thr Asn Ala Trp Thr Asp Ala Ser Val Val Leu Tyr Gln Ser
385                 390                 395                 400

Gly Gly Ile Arg Ala Pro Ile Asp Pro Arg Thr Ala Ala Gly Ser Ile
                405                 410                 415

Thr Arg Leu Glu Leu Asp Asn Val Leu Pro Phe Gly Asn Ala Leu Tyr
            420                 425                 430
```

Val Val Lys Val Pro Gly Asn Val Leu Arg Lys Ala Leu Glu His Ser
435 440 445

Val His Arg Tyr Ser Asn Thr Ser Gly Trp Gly Glu Phe Pro Gln Val
450 455 460

Ser Gly Leu Lys Ile Arg Phe Asn Val Asn Glu Glu Ile Gly Lys Arg

Val Lys Ser Val Lys Val Leu Cys Ser Asn Cys Ser Gln Pro Glu Tyr
485 490 495

Gln Pro Leu Arg Asn Lys Lys Thr Tyr Asn Val Ile Met Asp Ser Phe
500 505 510

Met Lys Asp Gly Gly Asp Gly Tyr Ser Met Phe Lys Pro Leu Lys Ile
515 520 525

Ile Lys Thr Leu Pro Leu Gly Asp Ile Glu Thr Val Glu Ala Tyr Ile
530 535 540

Glu Lys Met Gly Pro Ile Phe Pro Ala Val Glu Gly Arg Ile Thr Val
545 550 555 560

Leu Gly Gly Leu Gln Lys Ser Asp Glu Asp Trp His
565 570

<210> 38
<211> 1839
<212> DNA
<213> Lutzomyia longipalpis

<400> 38
agttgcaaga atttcttcat tgcgttaaga tgttgttttt ccttaacttt tttgtgctgg 60

tgttcagcat agaactggcg ttgttaacag catcagcagc agcagaagac ggcagctatg 120

agatcataat tcttcacacc aatgatatgc acgcgcgttt tgatcaaacc aatgctggaa 180

gcaacaaatg ccaagaaaaa gacaagattg cttccaaatg ctacggagga tttgcaagag 240

tttcaacaat ggtgaaaaaa ttccgagaag aaaatggcag cagtgtcttg ttcttgaatg 300

ctggtgacac gtatacaggt accccatggt ttaccctcta caaggagacc attgcaacgg 360

agatgatgaa catccttcgt ccagatgcag cctcactggg aaatcatgaa ttcgacaaag 420

gagtagaagg actcgtgcca ttcctcaatg gtgtcacctt ccctatttta acagcgaatt 480

tggacacttc tcaagagcca acaatgacca atgctaaaaa tctcaaacgc tcaatgattt 540

ttacggtttc cgggcacaga gttggtgtaa ttggctacct aacgcctgat acaaaattcc 600

tctcggacgt tggtaaagtt aattttattc cggaagttga agccatcaat acggaagcac 660

agcgtctgaa gaaagaggaa aatgccgaaa taatcatcgt tgttggacat tcagggttga 720

taaaagatcg agaaattgca gagaaatgcc cactggttga cataattgtt ggaggacatt 780

cacacacatt cctctacaca ggaagtcagc ctgatcgtga ggttcctgta gacgtttatc 840

ctgttgttgt gacccaatcc agtgggaaga aagttccaat tgttcaagcc tattgcttta 900

caaagtattt ggggtacttt aaagtgacga tcaacggaaa aggaaatgtt gtgggatgga 960

ctgggcagcc aattctcctt aataacaaca ttccccaaga tcaggaagtt ctcactgctc 1020

ttgaaaagta cagagaacgc gtggaaaact atggaaatcg cgtaattgga gtttcccgtg 1080

taattctcaa tgggggggcat actgaatgtc gtttccatga atgcaatatg ggtaatctca 1140

tcacggacgc ttttgtgtat gccaatgtaa tcagtacacc aatgagtacg aatgcctgga 1200

cagatgcaag tgttgttctg tatcaaagtg gtggcattcg tgccccaatt gatcctcgta 1260

ccgcggcagg gagcatcaca cgcctcgagt tggacaatgt tctaccattt gggaatgcac 1320

tgtacgtcgt aaaagttcct gggaatgtct tacgcaaagc tttggaacat tcagttcatc 1380

gatactccaa cacttcggga tggggagaat ttccacaagt ttcggggcta aagattcgtt 1440

ttaacgtcaa tgaagaaatt ggaaaacgcg taaagtccgt taaagttctc tgtagcaatt 1500

gctctcaacc tgaataccaa ccactgagaa ataaaaaaac ttacaacgtt atcatggaca 1560

gttttatgaa ggatggaggt gatgggtata gcatgttcaa gcccttgaag atcatcaaga 1620

ccctcccact gggagatatt gaaacagtag aagcttatat tgagaaaatg ggccccattt 1680

tcccagcagt cgagggaagg atcactgttc ttgggggact tcaaaaatca gatgaggatt 1740

ggcattagaa acatcctgga cgttatggaa agaataaaag aaggatcata gaaaaaaaaa 1800

aaaaaaaaat aaaaaaaaaa aaaaaaaaaa aaaaaaaaa 1839

<210> 39
<211> 86
<212> PRT
<213> Lutzomyia longipalpis

<400> 39

Met Lys Gln Ile Leu Leu Ile Ser Leu Val Val Ile Leu Ala Val Leu
1 5 10 15

Ala Phe Asn Val Ala Glu Gly Cys Asp Ala Thr Cys Gln Phe Arg Lys
20 25 30

Ala Ile Glu Asp Cys Lys Lys Lys Ala Asp Asn Ser Asp Val Leu Gln
35 40 45

Thr Ser Val Gln Thr Thr Ala Thr Phe Thr Ser Met Asp Thr Ser Gln
50 55 60

Leu Pro Gly Asn Asn Val Phe Lys Ala Cys Met Lys Glu Lys Ala Lys
65 70 75 80

Glu Phe Arg Ala Gly Lys
85

<210> 40
<211> 419
<212> DNA
<213> Lutzomyia longipalpis

<400> 40
gtcagtgatc tgataagtta ttaaaatgaa gcaaatcctt ctaatctctt tggtggtgat 60

tcttgccgtg cttgccttca atgttgctga gggctgtgat gcaacatgcc aatttcgcaa 120

agccatagaa gactgcaaga agaaggcgga taatagcgat gttttgcaga cttctgtaca 180

aacaactgca acattcacat caatggatac atcccaacta cctggaaata atgtcttcaa 240

agcatgcatg aaggagaagg ctaaggaatt tagggcagga aagtaagaga ttgaggaaaa 300

ttgtagccga agagagaagg aaggaaagtc ccatattttg tttgttaatt gtaacgaatt 360

ttgcgaaaaa aataaaatat tatgcactcc aaaaaaaaaa aaaaaaaaaa aaaaaaaaa 419

<210> 41
<211> 84
<212> PRT
<213> Lutzomyia longipalpis

<400> 41

Met Asn Val Leu Phe Val Ser Phe Thr Leu Thr Ile Leu Leu Leu Cys
1 5 10 15

Val Lys Ala Arg Pro Glu Asp Phe Val Ala Leu Gln Asp Gln Ala Asn
20 25 30

Phe Gln Lys Cys Leu Glu Gln Tyr Pro Glu Pro Asn Gln Ser Gly Glu
35 40 45

Val Leu Ala Cys Leu Lys Lys Arg Glu Gly Ala Lys Asp Phe Arg Glu
50 55 60

Lys Arg Ser Leu Asp Asp Ile Glu Gly Thr Phe Gln Glu Ser Gly Asn
65 70 75 80

Leu Trp Gly Ala

<210> 42
<211> 429
<212> DNA
<213> Lutzomyia longipalpis

<400> 42
tatttttaat aattctgtgt aaaatgaacg ttcttttcgt gtctttcacg ctcacaattc 60

ttcttctctg tgttaaggca cggccagaag atttcgtagc tcttcaggat caagctaatt 120

tccagaaatg cctcgaacaa tatccagaac caaatcaatc tggagaagtt cttgcgtgcc 180

tcaagaagcg cgaaggtgcc aaagatttcc gggaaaagag gagcctggat gacatagaag 240

ggactttcca agagtctgga aatctctggg gtgcatagga agctcagagg acttctaatc 300

aatctgtgag aagagaaccc aacggctaga gaaaatttaa ggaaaataaa gaaattaatg 360

aagcattaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 420

aaaaaaaaa 429

<210> 43
<211> 626
<212> PRT
<213> Lutzomyia longipalpis

<400> 43

Met Lys Ile Thr Val Ile Leu Phe Thr Gly Phe Thr Ile Ala Leu Val
1 5 10 15

Ser Ser Ala Val Leu Lys Lys Asn Gly Glu Thr Ile Glu Glu Glu Glu
20 25 30

Val Arg Ala Glu Gln Arg Leu Arg Glu Ile Asn Glu Glu Leu Asp Arg
35 40 45

Arg Lys Asn Ile Asn Thr Val Ala Ala Trp Ala Tyr Ala Ser Asn Ile
50 55 60

Thr Glu Val Asn Leu Lys Asn Met Asn Asp Val Ser Val Glu Thr Ala
65 70 75 80

Lys Tyr Tyr Lys Glu Leu Ala Ser Glu Leu Lys Gly Phe Asn Ala Lys
85 90 95

Glu Tyr Lys Ser Glu Asp Leu Lys Arg Gln Ile Lys Lys Leu Ser Lys
100 105 110

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Leu Gly Tyr Ser Ala Leu Pro Ser Glu Lys Tyr Lys Glu Leu Leu Glu
        115                 120                 125

Ala Ile Thr Trp Met Glu Ser Asn Tyr Ala Lys Val Lys Val Cys Ser
    130                 135                 140

Tyr Lys Asp Pro Lys Lys Cys Asp Leu Ala Leu Glu Pro Glu Ile Thr
145                 150                 155                 160

Glu Ile Leu Ile Lys Ser Arg Asp Pro Glu Glu Leu Lys Tyr Tyr Trp
                165                 170                 175

Lys Gln Trp Tyr Asp Lys Ala Gly Thr Pro Thr Arg Glu Ser Phe Asn
            180                 185                 190

Lys Tyr Val Gln Leu Asn Arg Glu Ala Ala Lys Leu Asp Gly Phe Tyr
        195                 200                 205

Ser Gly Ala Glu Ser Trp Leu Asp Glu Tyr Glu Asp Glu Thr Phe Glu
    210                 215                 220

Lys Gln Leu Glu Asp Ile Phe Ala Gln Ile Arg Pro Leu Tyr Glu Gln
225                 230                 235                 240

Leu His Ala Tyr Val Arg Phe Lys Leu Arg Glu Lys Tyr Gly Asn Asp
                245                 250                 255

Val Val Ser Glu Lys Gly Pro Ile Pro Met His Leu Leu Gly Asn Met
            260                 265                 270

Trp Gly Gln Thr Trp Ser Glu Val Ala Pro Ile Leu Val Pro Tyr Pro
        275                 280                 285

Glu Lys Lys Leu Leu Asp Val Thr Asp Glu Met Val Lys Gln Gly Tyr
    290                 295                 300

Thr Pro Ile Ser Met Phe Glu Lys Gly Asp Glu Phe Phe Gln Ser Leu
305                 310                 315                 320

Asn Met Thr Lys Leu Pro Lys Thr Phe Trp Glu Tyr Ser Ile Leu Glu
                325                 330                 335

Lys Pro Gln Asp Gly Arg Glu Leu Ile Cys His Ala Ser Ala Trp Asp
            340                 345                 350
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Phe Tyr Thr Lys Asp Asp Val Arg Lys Gln Cys Thr Arg Val Thr Met
355 360 365

Asp Gln Phe Phe Thr Ala His His Glu Leu Gly His Ile Gln Tyr Tyr
370 375 380

Leu Gln Tyr Gln His Leu Pro Ser Val Tyr Arg Glu Gly Ala Asn Pro
385 390 395 400

Gly Phe His Glu Ala Val Gly Asp Val Leu Ser Leu Ser Val Ser Ser
405 410 415

Pro Lys His Leu Glu Lys Val Gly Leu Leu Lys Asp Phe Lys Phe Asp
420 425 430

Glu Glu Ser Gln Ile Asn Gln Leu Leu Asn Leu Ala Leu Asp Lys Met
435 440 445

Ala Phe Leu Pro Phe Ala Tyr Thr Ile Asp Lys Tyr Arg Trp Gly Val
450 455 460

Phe Arg Gly Glu Ile Ser Pro Ser Glu Tyr Asn Cys Lys Phe Trp Glu
465 470 475 480

Met Arg Ser Tyr Tyr Gly Gly Ile Glu Pro Pro Ile Ala Arg Ser Glu
485 490 495

Ser Asp Phe Asp Pro Pro Ala Lys Tyr His Ile Ser Ser Asp Val Glu
500 505 510

Tyr Leu Arg Tyr Leu Val Ser Phe Ile Ile Gln Phe Gln Phe His Gln
515 520 525

Ala Val Cys Gln Lys Thr Gly Gln Phe Val Pro Asn Asp Pro Glu Lys
530 535 540

Thr Leu Leu Asn Cys Asp Ile Tyr Gln Ser Ala Glu Ala Gly Asn Ala
545 550 555 560

Phe Lys Glu Met Leu Lys Leu Gly Ser Ser Lys Pro Trp Pro Asp Ala
565 570 575

Met Glu Ile Leu Thr Gly Gln Arg Lys Met Asp Ala Ser Ala Leu Ile
580 585 590

Glu Tyr Phe Arg Pro Leu Ser Glu Trp Leu Gln Lys Lys Asn Lys Glu
595 600 605

Leu Gly Ala Tyr Val Gly Trp Asp Lys Ser Thr Lys Cys Val Lys Asn
610 615 620

Val Ser
625

<210> 44
<211> 2121
<212> DNA
<213> Lutzomyia longipalpis

<400> 44
gtatatcaag tatcattcaa gtgaatcatt ggctccgtaa tttgtacaaa agaaaaaaaa 60

gagtagtgct gtgcttaaga aaaacggtga aactattgaa gaagaagaag taagagctga 180

gcaacgactt agagagatca atgaggaact tgatcgtagg aagaatatca atactgtagc 240

cgcttgggct tatgcatcca atattactga ggtcaatctc aagaacatga atgatgtgtc 300

ggttgaaacc gcgaaatact acaaggaact tgcatctgaa ttgaagggat tcaatgccaa 360

ggaatacaag agtgaggatc tgaagagaca aattaagaag ctaagcaagt tgggatatag 420

tgctttacca tctgagaagt ataaggagct tttggaagct atcacatgga tggaatcgaa 480

ttatgcaaaa gtgaaagttt gctcatacaa ggatccaaag aaatgtgatt tagcacttga 540

acctgaaatt acggaaatcc ttattaaaag tcgagatcct gaggaactta aatattattg 600

gaaacaatgg tacgacaaag ctggcacacc aactcgagag agttttaata agtatgtaca 660

actaaatcgt gaagcagcga aattggatgg attttattcg ggtgcagaat cttggcttga 720

tgaatatgaa gatgagacat ttgagaaaca acttgaggat atcttcgccc aaattcgccc 780

actgtacgag caactccatg cttatgttag attcaagctg agggaaaagt atggaaatga 840

cgttgtttcg gagaaaggtc ccattccaat gcatctcttg gggaacatgt ggggtcaaac 900

gtggagtgaa gttgccccaa ttttagtccc ataccccgaa aagaagctcc tcgatgttac 960

cgatgagatg gttaagcagg gatacacacc aatttctatg tttgaaaaag gagacgaatt 1020

tttccaaagc ttgaatatga cgaaacttcc aaaaaccttc tgggagtaca gtattttgga 1080

aaaaccccaa gatggtaggg aattgatctg ccatgcaagt gcatgggact tctatacaaa 1140

ggatgatgta aggattaaac agtgtaccag agttacaatg gatcaattct tcacggctca 1200

tcatgagctt ggtcacattc aatattattt gcaatatcaa catttgccga gtgtttacag 1260

agaaggtgcc aatccaggct ttcacgaggc tgttggggat gttctctctc tttcggtatc 1320

aagtcctaaa catttggaaa aagttggttt gcttaaagac ttcaaatttg atgaagaatc 1380

ccagataaat caacttctaa atttagctct ggataaaatg gcattcctcc catttgccta 1440

taccattgat aaatatcgct ggggtgtgtt tcggggtgaa atttcgccgt ctgagtacaa 1500

ttgcaaattt tgggaaatgc gttcctacta tggtggtata gaaccaccaa ttgcacgttc 1560

tgagagtgat tttgatccac cagcaaaata tcatatttca tcggatgttg agtacctcag 1620

gtatttggtt tccttcatta ttcagttcca attccatcaa gctgtgtgcc aaaagactgg 1680

tcagttcgta ccgaatgatc cggagaagac tcttctaaat tgtgacatct accagagtgc 1740

tgaggctggt aatgccttca aagaaatgct caaattggga tcctcaaaac catggccaga 1800

tgcaatggaa attcttacgg ggcaaaggaa aatggatgct tctgcattaa ttgagtactt 1860

ccgtccactc agtgagtggt tgcagaagaa gaataaggaa ctaggagctt atgttggctg 1920

ggacaaatct actaagtgtg tcaaaaacgt cagttaattt tttgtgagcc ctaaaaaata 1980

ttcataacat ttcaatatga caaaatatat gattttcgtg aaaactaagc atgagtaagt 2040

ttttttttgtg aatttttagc agtttcattt cagaataaac gtcaaatttt taaaaaaaaa 2100

aaaaaaaaaa aaaaaaaaaa a 2121

<210> 45
<211> 42
<212> PRT
<213> Lutzomyia longipalpis

<400> 45

Met Lys Thr Phe Ala Leu Ile Phe Leu Ala Leu Ala Val Phe Val Leu
1 5 10 15

Cys Ile Asp Gly Ala Pro Thr Phe Val Asn Leu Leu Asp Asp Val Gln
20 25 30

Glu Glu Val Glu Val Asn Thr Tyr Glu Pro
35 40

<210> 46
<211> 463
<212> DNA
<213> Lutzomyia longipalpis

<400> 46
tcagttagtt gactaacaaa ccacaataga gacactaaaa tgaagacatt cgccttaatc 60

ttcttggctc ttgctgtttt tgtgctctgc attgacggag ctccaacttt tgtgaattta 120

ctggacgacg tacaggaaga ggtagaagtt aatacgtatg agccttagga agaaaatgtt 180

tgaggagttt caggcagagg cagagctttc ccagagaggg agcttttgcc ttgctgtaga 240

tttttaaaaa tgaatcaatt tgattggagc aattacgcta tatttgtggg aatatttttg 300

aattaaaaac taattatgga aattaatata taattttcag aatttcaata aattcatcaa 360

aattgtatta attaaaaaat attgtatgaa attcccaata aaagctttca aattaaaaaa 420

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa 463

<210> 47
<211> 139
<212> PRT
<213> Lutzomyia longipalpis

<400> 47

Met Asn His Leu Cys Phe Ile Ile Ile Ala Leu Phe Phe Leu Val Gln
1 5 10 15

Gln Ser Leu Ala Glu His Pro Glu Glu Lys Cys Ile Arg Glu Leu Ala
20 25 30

Arg Thr Asp Glu Asn Cys Ile Leu His Cys Thr Tyr Ser Tyr Tyr Gly
35 40 45

Phe Val Asp Lys Asn Phe Arg Ile Ala Lys Lys His Val Gln Lys Phe
50 55 60

Lys Lys Ile Leu Val Thr Phe Gly Ala Val Pro Lys Lys Glu Lys Lys
65 70 75 80

Lys Leu Leu Glu His Ile Glu Ala Cys Ala Asp Ser Ala Asn Ala Asp
85 90 95

Gln Pro Gln Thr Lys Asp Glu Lys Cys Thr Lys Ile Asn Lys Tyr Tyr
100 105 110

Arg Cys Val Val Asp Gly Lys Ile Leu Pro Trp Asn Ser Tyr Ala Asp
115 120 125

Ala Ile Ile Lys Phe Asp Lys Thr Leu Asn Val
130 135

<210> 48
<211> 579
<212> DNA
<213> Lutzomyia longipalpis

<400> 48
ggccattatg gccggggata gaacttaatt gttgttaaaa tgaatcactt gtgctttatt 60

attattgctc tattcttttt ggttcaacaa tctttggctg aacatccaga agaaaaatgt 120

attagagaat tggcgagaac tgatgaaaac tgcattcttc attgtacgta ttcgtactac 180

ggattcgttg ataaaaattt caggatcgct aaaaaacatg ttcaaaaatt caaaaaaatc 240

ctagttacat tcggcgctgt tcctaagaaa gaaaaaaaga aacttttaga gcacattgag 300

gcttgtgcgg attctgcgaa tgctgatcaa cctcaaacta aagatgaaaa atgtacaaaa 360

ataaataagt actatcgttg tgttgtggat ggaaaaatat taccctggaa tagttatgct 420

gatgcaatca ttaagtttga taaaaccctt aacgtatgaa gcaaagatat tcgaaaaaaa 480

aacatcaaga ttatgctgga aagaaaaaaa taaaaaaaaa ttgtgctaat caaattgaat 540

taacgcttaa tgctatatta aaaaaaaaaa aaaaaaaaa 579

<210> 49
<211> 446
<212> PRT
<213> Lutzomyia longipalpis

<400> 49

Met Lys Ile Ile Phe Leu Ala Ala Phe Leu Leu Ala Asp Gly Ile Trp
1 5 10 15

Ala Ala Glu Glu Pro Ser Val Glu Ile Val Thr Pro Gln Ser Val Arg
20 25 30

Arg His Ala Thr Pro Lys Ala Gln Asp Ala Arg Val Gly Ser Glu Ser
35 40 45

Ala Thr Thr Ala Pro Arg Pro Ser Glu Ser Met Asp Tyr Trp Glu Asn
50 55 60

Asp Asp Phe Val Pro Phe Glu Gly Pro Phe Lys Asp Ile Gly Glu Phe
65 70 75 80

Asp Trp Asn Leu Ser Lys Ile Val Phe Glu Glu Asn Lys Gly Asn Ala
85 90 95

Ile Leu Ser Pro Leu Ser Val Lys Leu Leu Met Ser Leu Leu Phe Glu
100 105 110

Ala Ser Ala Ser Gly Thr Leu Thr Gln His Gln Leu Arg Gln Ala Thr
115 120 125

Pro Thr Ile Val Thr His Tyr Gln Ser Arg Glu Phe Tyr Lys Asn Ile
130 135 140

Phe Asp Gly Leu Lys Lys Lys Ser Asn Asp Tyr Thr Val His Phe Gly
145 150 155 160

Thr Arg Ile Tyr Val Asp Gln Phe Val Thr Pro Arg Gln Arg Tyr Ala
165 170 175

Ala Ile Leu Glu Lys His Tyr Leu Thr Asp Leu Lys Val Glu Asp Phe
180 185 190

Ser Lys Ala Lys Glu Thr Thr Gln Ala Ile Asn Ser Trp Val Ser Asn
195 200 205

Ile Thr Asn Glu His Ile Lys Asp Leu Val Lys Glu Glu Asp Val Gln
210 215 220

Asn Ser Val Met Leu Met Leu Asn Ala Val Tyr Phe Arg Gly Leu Trp
225 230 235 240

Arg Lys Pro Phe Asn Arg Thr Leu Pro Leu Pro Phe His Val Ser Ala
245 250 255

Asp Glu Ser Lys Thr Thr Asp Phe Met Leu Thr Asp Gly Leu Tyr Tyr
260 265 270

Phe Tyr Glu Ala Lys Glu Leu Asp Ala Lys Ile Leu Arg Ile Pro Tyr
275 280 285

Lys Gly Lys Gln Tyr Ala Met Thr Val Ile Leu Pro Asn Ser Lys Ser
290 295 300

Gly Ile Asp Ser Phe Val Arg Gln Ile Asn Thr Val Leu Leu His Arg
305 310 315 320

Ile Lys Trp Leu Met Asp Glu Val Glu Cys Arg Val Ile Leu Pro Lys
325 330 335

Phe His Phe Asp Met Thr Asn Glu Leu Lys Glu Ser Leu Val Lys Leu
340 345 350

Gly Ile Ser Gln Ile Phe Thr Ser Glu Ala Ser Leu Pro Ser Leu Ala
355 360 365

Arg Gly Gln Gly Val Gln Asn Arg Leu Gln Val Ser Asn Val Ile Gln
370 375 380

Lys Ala Gly Ile Ile Val Asp Glu Lys Gly Ser Thr Ala Tyr Ala Ala
385 390 395 400

Ser Glu Val Ser Leu Val Asn Lys Phe Gly Asp Asp Glu Phe Val Met
405 410 415

Phe Asn Ala Asn His Pro Phe Leu Phe Thr Ile Glu Asp Glu Thr Thr
420 425 430

Gly Ala Ile Leu Phe Thr Gly Lys Val Val Asp Pro Thr Gln
435 440 445

<210> 50
<211> 1651
<212> DNA
<213> Lutzomyia longipalpis

<220>
<221> misc_feature
<222> (1636)..(1636)
<223> n is a, c, g, or t

<400> 50
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ttaagtgtgt gtgtcttagc aaagtgattt ccacaatgaa gattattttt ttagccgctt 120

ttctactagc ggatggtatt tgggctgctg aagaaccttc agtggaaatt gtaacaccac 180

aatcagtgcg gagacacgct acgccaaaag cccaggacgc gagggtagga agtgaatccg 240

caacaacagc accaagacca agtgaatcaa tggattactg ggagaatgat gatttcgtcc 300

catttgaggg tccattcaag gatattggag aattcgactg gaacctttcg aagatcgttt 360

ttgaggaaaa caaaggtaat gccatcttgt cgccactctc tgtgaagcta ctaatgagtt 420

tgctcttcga ggccagtgcg tcaggtacct tgacccagca ccaactcaga caagccactc 480

ccaccatcgt cacccactat cagtctcgag aattttacaa gaatatcttt gacggtctca 540

agaaaaagag taacgactac acggttcact ttggtacgag aatctacgtg gatcagtttg 600

tgacgcctcg ccagagatat gctgccattt tggagaagca ttatctgact gatctcaaag 660

ttgaggactt ctcgaaggca aaagaaacaa ctcaggcaat caatagttgg gtgtcaaaca 720

tcacaaatga gcacataaag gatctcgtga aggaggaaga tgttcagaat tcagttatgc 780

tcatgcttaa tgcagtctac ttccgcggac tctggcgcaa gcctttcaat cgtacactcc 840

cactgccctt ccacgtgagc gctgatgagt ccaagacgac tgattttatg ctaaccgatg 900

ggctctacta cttctacgag gcaaaggaat tggatgctaa gatcctcaga attccttaca 960

aaggtaaaca atacgcaatg actgtgatct taccaaattc caagagtggc attgatagct 1020

ttgtgcgtca gattaacacg gtcctcctgc acaggattaa gtggttgatg gatgaagtgg 1080

agtgcagggt tattctaccc aagttccact ttgacatgac gaatgagctg aaggaatcgc 1140

tcgtaaagtt gggcatcagt cagattttca catcagaggc atctttgcca tcattagcac 1200

gaggacaggg cgtacagaat cgtctgcagg tgtctaatgt gattcagaag gcgggaataa 1260

ttgtggatga gaagggcagc acagcctatg ctgcgtcaga agtgagccta gtcaacaagt 1320

ttggagatga tgagttcgtc atgttcaacg ctaatcatcc attcctcttt acaattgagg 1380

acgaaaccac cggcgcaatc ctatttacgg gaaaagtcgt cgatcccacg caatagggaa 1440

tgaaaagcat ttcatcgtat acaacttttt ttttaattaa ttattcctca ttgaaggaca 1500

ttaatagagc atcttctcag gaaggcactc ctgacttatt tttactaaat gtgatccttg 1560

gacacataaa aaaaacagct gtactttcta ctttttataa tatacgacca tatttgtgag 1620

gaaaaaaaaa aaaaanaaaa aaaaaaaaaa a 1651

<210> 51
<211> 166
<212> PRT
<213> Lutzomyia longipalpis

<400> 51

Met Arg Phe Leu Leu Leu Ala Phe Ser Val Ala Leu Val Leu Ser Pro
1 5 10 15

Thr Phe Ala Lys Pro Gly Leu Trp Asp Ile Val Thr Gly Ile Asn Asp
20 25 30

Met Val Lys Asn Thr Ala Asn Ala Leu Lys Asn Arg Leu Thr Thr Ser
35 40 45

Val Thr Leu Phe Thr Asn Thr Ile Thr Glu Ala Ile Lys Asn Ala Asn
50 55 60

Ser Ser Val Ser Glu Leu Leu Gln Gln Val Asn Glu Thr Leu Thr Asp
65 70 75 80

Ile Ile Asn Gly Val Gly Gln Val Gln Ser Ala Phe Val Asn Ser Ala
85 90 95

Gly Asn Val Val Val Gln Ile Val Asp Ala Ala Gly Asn Val Leu Glu
100 105 110

Val Val Val Asp Glu Ala Gly Asn Ile Val Glu Val Ala Gly Thr Ala
115 120 125

Leu Glu Thr Ile Ile Pro Leu Pro Gly Val Val Ile Gln Lys Ile Ile
130 135 140

Asp Ala Leu Gln Gly Asn Ala Gly Thr Thr Ser Asp Ser Ala Ser Ser
145 150 155 160

Thr Val Pro Gln Gln Ser
165

<210> 52
<211> 739
<212> DNA
<213> Lutzomyia longipalpis

<400> 52
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cttctccgtt gctttggtgc tttcaccaac attcgccaaa ccaggtcttt gggacattgt 120

aactggtatt aatgatatgg taaaaaatac tgcgaatgca ctcaaaaatc gtctaacaac 180

ttctgtgaca ttattcacaa ataccatcac cgaagctata aaaaatgcaa attcttctgt 240

ttcggaactc cttcagcaag tcaatgaaac ccttacggat attattaatg gtgtaggaca 300

agtgcagagt gcctttgtga attcagctgg aaatgttgtt gtgcaaattg ttgatgccgc 360

tggaaatgtt ttggaagttg ttgttgatga ggctggaaat atcgtggagg tagctggaac 420

agcattggaa actatcattc cactgcccgg tgtagtgatt cagaagataa ttgatgctct 480

ccaaggaaat gcagggacta catcggattc agcttcatca actgtgcccc aacaatctta 540

actacaaccg caatgatgtt gtctttaacg gagaattttt aaatttgaat atcaaaatcc 600

aagatgaaat attcagattt ttcaatcaat atgatacgaa attttgaaat tatttttccg 660

actaaagcaa tttgtaaaag gaaaaccaaa taaatatttg aaattgtaaa gaaaaaaaaa 720

aaaaaaaaaa aaaaaaaaa 739

<210> 53
<211> 109
<212> PRT
<213> Lutzomyia longipalpis

<400> 53

Met Val Lys Tyr Ser Cys Leu Val Leu Val Ala Ile Phe Leu Leu Ala
1 5 10 15

Gly Pro Tyr Gly Val Val Gly Ser Cys Glu Asn Asp Leu Thr Glu Ala
20 25 30

Ala Lys Tyr Leu Gln Asp Glu Cys Asn Ala Gly Glu Ile Ala Asp Glu
35 40 45

Phe Leu Pro Phe Ser Glu Glu Glu Val Gly Glu Ala Leu Ser Asp Lys
50 55 60

Pro Glu Asn Val Gln Glu Val Thr Asn Ile Val Arg Gly Cys Phe Glu
65 70 75 80

Ala Glu Gln Ala Lys Glu His Gly Lys Cys Glu Arg Phe Ser Ala Leu
85 90 95

Ser Gln Cys Tyr Ile Glu Lys Asn Leu Cys Gln Phe Phe
100 105

<210> 54
<211> 447
<212> DNA
<213> Lutzomyia longipalpis

<400> 54
atatcaattt tatcatcatg gtgaagtact cgtgtcttgt tcttgttgca atttttcttc 60

tggccggacc ctacggcgtt gtaggttctt gtgagaatga cctgacagag gccgccaagt 120

atcttcaaga tgaatgcaat gcaggtgaaa ttgcagatga atttctaccc ttctctgaag 180

aagaagtggg tgaagcattg agcgacaaac cagaaaacgt gcaggaagtc accaacatcg 240

tgagaggatg ctttgaagct gaacaagcca aagagcatgg aaaatgtgaa agattttccg 300

ctttgagtca atgctacatt gaaaagaatt tatgtcaatt cttctaaaat attttgaaga 360

aaagttatga atgaaaattt tctgaaattt tgttgcaaaa atatataaat tgcccaatta 420

aaaaaaaaaa aaaaaaaaaa aaaaaaa 447

<210> 55
<211> 115
<212> PRT
<213> Lutzomyia longipalpis

<400> 55

Met Lys Phe Phe Tyr Leu Ile Phe Ser Ala Ile Phe Phe Leu Ala Asp
1 5 10 15

Pro Ala Leu Val Lys Cys Ser Glu Asp Cys Glu Asn Ile Phe His Asp
20 25 30

Asn Ala Tyr Leu Leu Lys Leu Asp Cys Glu Ala Gly Arg Val Asp Pro
35 40 45

Val Glu Tyr Asp Asp Ile Ser Asp Glu Glu Ile Tyr Glu Ile Thr Val
50 55 60

Asp Val Gly Val Ser Ser Glu Asp Gln Glu Lys Val Ala Lys Ile Ile
65 70 75 80

Arg Glu Cys Ile Ala Gln Val Ser Thr Gln Asp Cys Thr Lys Phe Ser
85 90 95

Glu Ile Tyr Asp Cys Tyr Met Lys Lys Lys Ile Cys Asn Tyr Tyr Pro
100 105 110

Glu Asn Met
115

<210> 56
<211> 496
<212> DNA
<213> Lutzomyia longipalpis

<400> 56
agtttaattt tcatcatgaa gttcttctac ttgattttct ctgcaatttt ctttctggct 60

gatcctgctt tggtcaagtg ttcagaggat tgtgagaata ttttttcatga caatgcgtac 120

ctccttaaat tggattgtga agcaggaagg gttgatcctg ttgaatacga cgatatttcg 180

gatgaagaaa tatatgaaat aacggtcgat gttggagttt catctgagga ccaggagaaa 240

gttgcgaaaa taataaggga gtgcattgca caagtttcaa cgcaagattg cacgaaattt 300

tcagaaattt atgattgtta catgaagaag aaaatctgta attattatcc tgaaaatatg 360

taaaaaaaaa ttatttattt atataaaaaa atataaggat taaaatctct tattgattgt 420

aaaaatggcc taatattgaa gcaaaaatta aagcatgaaa caagaccaaa aaaaaaaaaa 480

aaaaaaaaaa aaaaaa 496

<210> 57
<211> 409
<212> PRT
<213> Lutzomyia longipalpis

<400> 57

Met His Leu Gln Leu Asn Leu Cys Ala Ile Leu Leu Ser Val Leu Asn
1 5 10 15

Gly Ile Gln Gly Ala Pro Lys Ser Ile Asn Ser Lys Ser Cys Ala Ile
20 25 30

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Ser Phe Pro Glu Asn Val Thr Ala Lys Lys Glu Pro Val Tyr Leu Lys
        35                  40                  45

Pro Ser Asn Asp Gly Ser Leu Ser Thr Pro Leu Gln Pro Ser Gly Pro
    50                  55                  60

Phe Val Ser Leu Lys Ile Gly Glu Ser Leu Ala Ile Phe Cys Pro Gly
65                  70                  75                  80

Asp Gly Lys Asp Val Glu Thr Ile Thr Cys Asn Thr Asn Phe Asp Leu
                85                  90                  95

Ala Ser Tyr Ser Cys Asn Lys Ser Thr Ser Thr Asp Thr Ile Glu Thr
            100                 105                 110

Glu Glu Val Cys Gly Gly Ser Gly Lys Val Tyr Lys Val Gly Phe Pro
        115                 120                 125

Leu Pro Ser Gly Asn Phe His Ser Ile Tyr Gln Thr Cys Phe Asp Lys
    130                 135                 140

Lys Asn Leu Thr Pro Leu Tyr Ser Ile His Ile Leu Asn Gly Gln Ala
145                 150                 155                 160

Val Gly Tyr His Leu Lys His Thr Arg Gly Ser Phe Arg Thr Asn Gly
                165                 170                 175

            180                 185                 190

Lys Phe Asn Lys Leu Phe Gly Pro Lys Gln Thr Phe Phe Arg Arg Pro
        195                 200                 205

Leu Asn Phe Leu Ser Arg Gly His Leu Ser Pro Glu Val Asp Phe Thr
    210                 215                 220

Phe Arg Arg Glu Gln His Ala Thr Glu Met Tyr Ile Asn Thr Ala Pro
225                 230                 235                 240

Gln Tyr Gln Ser Ile Asn Gln Gly Asn Trp Leu Arg Val Glu Asn His
                245                 250                 255

Val Arg Asp Leu Ala Lys Val Leu Gln Lys Asp Ile Thr Val Val Thr
            260                 265                 270

Gly Ile Leu Gly Ile Leu Arg Leu Lys Ser Lys Lys Ile Glu Lys Glu
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275 280 285

Ile Tyr Leu Gly Asp Asp Val Ile Ala Val Pro Ala Met Phe Trp Lys
290 295 300

Ala Val Phe Asp Pro Gln Lys Gln Glu Ala Ile Val Phe Val Ser Ser
305 310 315 320

Asn Asn Pro His Val Lys Thr Phe Asn Pro Asn Cys Lys Asp Val Cys
325 330 335

Ala Gln Ala Gly Phe Gly Asn Asp Asn Leu Glu Tyr Phe Ser Asn Tyr
340 345 350

Ser Ile Gly Leu Thr Ile Cys Cys Lys Leu Glu Glu Phe Val Lys Arg
355 360 365

Asn Lys Ile Ile Leu Pro Lys Glu Val Asn Asn Lys Asn Tyr Thr Lys
370 375 380

Lys Leu Leu Lys Phe Pro Lys Thr Arg Asn Lys Glu Gly Asp Lys Lys
385 390 395 400

Val Val Arg Lys Arg Ala Lys Gly Ala
405

<210> 58
<211> 1281
<212> DNA
<213> Lutzomyia longipalpis

<400> 58
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gaattcaggg cgctcccaaa agtattaatt caaaatcctg cgcaatctcc tttccggaga 120

atgtaacggc taagaaggag ccagtgtact tgaaaccatc aaatgatggc tcattgagta 180

ccccctaca gccaagtggg ccatttgtaa gtctcaaaat tggagaatct cttgcaatct 240

tctgtccagg tgatggaaag gacgtagaga caattacgtg caatacaaat ttcgatttag 300

cttcatattc gtgcaacaag agcacatcaa cggataccat tgaaacggaa gaagtttgcg 360

gaggaagtgg aaaagtgtac aaagttggtt ttccgctgcc ctctgggaat ttccattcaa 420

tctaccaaac gtgttttgat aagaaaaatc tcacacctct ctactcaatt cacattctca 480

atggtcaagc tgttggatat caccttaagc acacaagagg aagctttcgt accaatggta 540

tctacgggaa agtcaacatt gataaactct acaagacgca aattgagaaa ttcaacaaac 600

ttttcggccc taaacaaaca tttttccgta gacccctcaa ttttctatca cgtggacact 660

taagccccga agtggacttt acattccgta gggaacaaca tgcaacggaa atgtacatta 720

acacagcacc acagtaccaa tcaattaatc aaggaaattg gctacgtgtt gaaaatcacg 780

tgagggatct cgcaaaagtt ctgcagaagg acataacagt cgttacggga attttgggga 840

tacttcggtt gaagagtaag aaaatagaga aagaaatcta tttaggagat gacgtaattg 900

ccgtaccagc aatgttctgg aaggctgttt ttgaccctca aaaacaagaa gcaattgtct 960

ttgtttcctc aaataatccc cacgtgaaga cctttaatcc caactgcaag gatgtatgcg 1020

ctcaagctgg atttgggaat gataatcttg aatatttctc caattattct attggtctga 1080

ctatttgttg caaacttgag gaatttgtta aaagaaataa aataattcta cccaaagaag 1140

taaataacaa aaactacacc aaaaaactcc ttaagtttcc taaaacaaga aacaaggagg 1200

gagataagaa ggtggtacgt aagcgcgcca aaggagcata aatattaaac gaaaaaaaaa 1260

aaaaaaaaaa aaaaaaaaaa a 1281

<210> 59
<211> 160
<212> PRT
<213> Lutzomyia longipalpis

<400> 59

Met Asn Leu His Leu Ala Ile Ile Leu Phe Val Ser Tyr Phe Thr Leu
1 5 10 15

Ile Thr Ala Thr Asp Leu Ile Glu Lys Glu Leu Ser Asp Cys Lys Lys
20 25 30

Ile Phe Ile Ser Lys Ala Glu Leu Thr Trp Phe Gln Ala Leu Asp Phe
35 40 45

Cys Thr Glu Gln Asn Leu Thr Leu Leu Ser Ile Lys Ser Ala Arg Glu
50 55 60

Asn Asp Glu Val Thr Lys Ala Val Arg Ala Glu Val His Leu Pro Asp
65 70 75 80

Thr Lys Lys Ser His Ile Trp Leu Gly Gly Ile Arg Tyr Asp Gln Asp
85 90 95

Lys Asp Phe Arg Trp Ile Ser Asp Gly Thr Thr Val Thr Lys Thr Val
100 105 110

Tyr Ile Asn Trp Tyr Gln Gly Glu Pro Asn Gly Gly Arg Tyr Gln Lys

115 120 125

Glu Phe Cys Met Glu Leu Tyr Phe Lys Thr Pro Ala Gly Gln Trp Asn
130 135 140

Asp Asp Ile Cys Thr Ala Lys His His Phe Ile Cys Gln Glu Lys Lys
145 150 155 160

<210> 60
<211> 671
<212> DNA
<213> Lutzomyia longipalpis

<400> 60
gttctacgat aaaattttct tttcaaactt ttcttttaaa gaaaaatctt caaaaagtta 60

aaatgaattt gcaccttgcg attatcctct ttgtgagtta cttcacactg atcactgcta 120

cggatctaat tgaaaaggaa ctttctgatt gcaaaaagat cttcatctcc aaggctgagc 180

taacttggtt ccaagctctc gatttctgta ccgaacaaaa cctaactttg ctctcaatta 240

aatccgcccg ggaaaatgat gaggtgacta aagcagttcg agctgaggtt catcttccag 300

acacaaagaa gtctcacatt tggctcggag gtattcgtta tgatcaagac aaggatttcc 360

gttggataag cgatggaaca actgttacga agacagtcta catcaattgg taccaaggag 420

aaccaaatgg tgggaggtac caaaaggaat tttgtatgga attgtacttt aaaactccag 480

ctggtcaatg gaatgatgat atttgtacag caaagcatca ttttatatgt caggagaaaa 540

aataaattga attgttcatg tgtctttggc ggtgcgaagg tataattcag gttgacgaca 600

taaattgatt tttctttcat taagaaaata aaggcttgaa tttataaaaa aaaaaaaaaa 660

aaaaaaaaaa a 671

<210> 61
<211> 160
<212> PRT
<213> Lutzomyia longipalpis

<400> 61

Met Asn Leu Pro Leu Ala Ile Ile Leu Phe Val Ser Tyr Phe Thr Leu
1 5 10 15

Ile Thr Ala Ala Asp Leu Thr Glu Lys Glu Leu Ser Asp Gly Lys Lys
20 25 30

Ile Phe Ile Ser Lys Ala Glu Leu Ser Trp Phe Asp Ala Leu Asp Ala
35 40 45

Cys Thr Glu Lys Asp Leu Thr Leu Leu Thr Ile Lys Ser Ala Arg Glu
50 55 60

Asn Glu Glu Val Thr Lys Ala Val Arg Ala Glu Val His Leu Pro Asp
65 70 75 80

Thr Lys Lys Ser His Ile Trp Leu Gly Gly Ile Arg Tyr Asp Gln Asp
85 90 95

Lys Asp Phe Arg Trp Ile Ser Asp Gly Thr Thr Val Thr Lys Thr Val
100 105 110

Tyr Ile Asn Trp Tyr Gln Gly Glu Pro Asn Gly Gly Arg Tyr Gln Lys
115 120 125

Glu Phe Cys Met Glu Leu Tyr Phe Lys Thr Pro Ala Gly Gln Trp Asn
130 135 140

Asp Asp Ile Cys Thr Ala Lys His His Phe Ile Cys Gln Glu Lys Lys
145 150 155 160

<210> 62
<211> 672
<212> DNA
<213> Lutzomyia longipalpis

<400> 62
gttctacgat aaaattttct tttcaaactt ttcttttaaa gaaaaatctt caaaaagtta 60

aaatgaattt gccccttgcg attatcctct ttgtgagtta cttcacactg atcactgctg 120

cggatctaac tgaaaaggaa ctttctgatg gcaaaaagat cttcatctcc aaggctgagc 180

taagttggtt cgatgctctc gatgcctgta ccgaaaaaga cctaactttg ctcacaatta 240

aatccgcccg ggaaaatgag gaagtgacta aagcagttcg agctgaggtt catcttccag 300

acacaaagaa gtctcacatt tggctcggag gtattcgtta tgatcaagac aaggatttcc 360

gttggataag cgatggaaca actgttacga agacagtcta catcaattgg taccaaggag 420

aaccaaatgg tgggaggtac caaaaggaat tttgtatgga attgtacttt aaaactccag 480

ctggtcaatg gaatgatgat atttgtacag caaagcatca ttttatatgt caggagaaaa 540

aataaattga attgttcatg tgtctttggc ggtgcgaagg tataattcag gttgacgaca 600

taaattgatt tttctttcat taagaaaata aaggcttgaa tttagcaaaa aaaaaaaaaa 660

aaaaaaaaaa aa 672

<210> 63
<211> 399

<212> PRT
<213> Lutzomyia longipalpis

<400> 63

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Met Lys Val Phe Phe Ser Ile Phe Thr Leu Val Leu Phe Gln Gly Thr
1               5                  10                  15

Leu Gly Ala Asp Thr Gln Gly Tyr Lys Trp Lys Gln Leu Leu Tyr Asn
            20                  25                  30

Asn Val Thr Pro Gly Ser Tyr Asn Pro Asp Asn Met Ile Ser Thr Ala
        35                  40                  45

Phe Ala Tyr Asp Ala Glu Gly Glu Lys Leu Phe Leu Ala Val Pro Arg
    50                  55                  60

Lys Leu Pro Arg Val Pro Tyr Thr Leu Ala Glu Val Asp Thr Lys Asn
65                  70                  75                  80

Ser Leu Gly Val Lys Gly Lys His Ser Pro Leu Leu Asn Lys Phe Ser
                85                  90                  95

Gly His Lys Thr Gly Lys Glu Leu Thr Ser Ile Tyr Gln Pro Val Ile
            100                 105                 110

Asp Asp Cys Arg Arg Leu Trp Val Val Asp Ile Gly Ser Val Glu Tyr
        115                 120                 125

Arg Ser Arg Gly Ala Lys Asp Tyr Pro Ser His Arg Pro Ala Ile Val
    130                 135                 140

Ala Tyr Asp Leu Lys Gln Pro Asn Tyr Pro Glu Val Val Arg Tyr Tyr
145                 150                 155                 160

Phe Pro Thr Arg Leu Val Glu Lys Pro Thr Tyr Phe Gly Gly Phe Ala
                165                 170                 175

Val Asp Val Ala Asn Pro Lys Gly Asp Cys Ser Glu Thr Phe Val Tyr
            180                 185                 190

Ile Thr Asn Phe Leu Arg Gly Ala Leu Phe Ile Tyr Asp His Lys Lys
        195                 200                 205

Gln Asp Ser Trp Asn Val Thr His Pro Thr Phe Lys Ala Glu Arg Pro
    210                 215                 220
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Thr Lys Phe Asp Tyr Gly Gly Lys Glu Tyr Glu Phe Lys Ala Gly Ile
225                 230                 235                 240

Phe Gly Ile Thr Leu Gly Asp Arg Asp Ser Glu Gly Asn Arg Pro Ala
                245                 250                 255

Tyr Tyr Leu Ala Gly Ser Ala Ile Lys Val Tyr Ser Val Asn Thr Lys
            260                 265                 270

Glu Leu Lys Gln Lys Gly Gly Lys Leu Asn Pro Glu Leu Leu Gly Asn
        275                 280                 285

Arg Gly Lys Tyr Asn Asp Ala Ile Ala Leu Ala Tyr Asp Pro Lys Thr
    290                 295                 300

Lys Val Ile Phe Phe Ala Glu Ala Asn Thr Lys Gln Val Ser Cys Trp
305                 310                 315                 320

Asn Thr Gln Lys Met Pro Leu Arg Met Lys Asn Thr Asp Val Val Tyr
                325                 330                 335

Thr Ser Ser Arg Phe Val Phe Gly Thr Asp Ile Ser Val Asp Ser Lys
            340                 345                 350

Gly Gly Leu Trp Phe Met Ser Asn Gly Phe Pro Pro Ile Arg Lys Ser
        355                 360                 365

Glu Lys Phe Lys Tyr Asp Phe Pro Arg Tyr Arg Leu Met Arg Ile Met
    370                 375                 380

Asp Thr Gln Glu Ala Ile Ala Gly Thr Ala Cys Asp Met Asn Ala
385                 390                 395
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<210> 64
<211> 1429
<212> DNA
<213> Lutzomyia longipalpis

<400> 64
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agggaccctt ggagcggata ctcaaggata taaatggaag caattgctct acaataatgt 120

tacaccagga tcctacaatc cggataatat gatcagtacg gcttttgcct acgatgctga 180

gggtgaaaaa ctcttcctag ctgtcccaag gaagttaccc agagttccgt atacattggc 240

ggaagtggat acaaagaata gtcttggtgt taagggaaaa cattcaccgt tacttaacaa 300

attcagtggg cacaaaactg ggaaggaact aacatcaatc tatcagccag ttattgatga 360

ttgtcgtcgc ctttgggtgg ttgatattgg ttccgtggaa tatcgctcaa gaggtgccaa 420

agactacccg agtcatcgtc ctgcaattgt tgcgtacgac ctaaagcaac caaactaccc 480

cgaagttgtt cgatactatt tccccacaag attagtggag aagccaacat atttcggtgg 540

atttgccgtt gatgttgcaa acccaaaggg ggattgtagt gaaacttttg tctacattac 600

aaacttcctc aggggagctc tctttatata cgatcataag aagcaggatt cgtggaatgt 660

aactcatccc accttcaaag cagaacgacc cactaaattt gattacggcg gaaaggaata 720

tgaattcaaa gccggaattt tcggaattac tctcggagat cgagacagtg aaggcaatcg 780

tccagcttac tacttagccg gaagtgccat caaagtctac agcgtcaaca cgaaagaact 840

taagcagaag ggtggaaagc tgaatccgga gcttcttgga aaccgcggga agtacaacga 900

tgccattgcc ctagcttacg atcccaaaac taaagttatc ttctttgctg aggccaacac 960

aaagcaagta tcctgctgga acacacagaa aatgccactg aggatgaaga ataccgacgt 1020

agtctacact agttctcgct ttgtctttgg aacggacatt tcggttgata gcaagggcgg 1080

cctctggttc atgtctaacg gctttccgcc tataaggaaa tcagaaaaat tcaaatatga 1140

cttcccacgc taccgtctaa tgaggatcat ggacacacag gaagcaattg ccggaactgc 1200

ttgcgatatg aatgcataaa agttaatttt caacccaaga agaagaccta aagaggcttt 1260

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<211> 170
<212> PRT
<213> Lutzomyia longipalpis

<400> 65

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Tyr Val Leu Gly Glu Thr Cys Ser Asn Ala Lys Val Lys Gly Ala Thr
20 25 30

Ser Tyr Ser Thr Thr Asp Ala Thr Ile Val Ser Gln Ile Ala Phe Val
35 40 45

Thr Glu Phe Ser Leu Glu Cys Ser Asn Pro Gly Ser Glu Lys Ile Ser
50 55 60

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Leu Phe Ala Glu Val Asp Gly Lys Ile Thr Pro Val Ala Met Ile Gly
65                  70                  75                  80

Asp Thr Thr Tyr Gln Val Ser Trp Asn Glu Glu Val Asn Lys Ala Arg
                85                  90                  95

Ser Gly Asp Tyr Ser Val Lys Leu Tyr Asp Glu Glu Gly Tyr Gly Ala
            100                 105                 110

Val Arg Lys Ala Gln Arg Ser Gly Glu Glu Asn Lys Val Lys Pro Leu
        115                 120                 125

Ala Thr Val Val Val Arg His Pro Gly Thr Tyr Thr Gly Pro Trp Phe
    130                 135                 140

Asn Ser Glu Ile Leu Ala Ala Gly Leu Ile Ala Val Val Ala Tyr Phe
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Ala Phe Ser Thr Arg Ser Lys Ile Leu Ser
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gaaacatgct caaatgctaa ggttaaggga gctacctctt attccacaac ggatgccaca    180

attgtaagcc aaattgcctt tgtgactgaa ttctccttgg aatgctcaaa tcctggatcc    240

gagaaaatct ccctatttgc tgaagtcgat ggcaaaatta ctcctgttgc catgatcggg    300

gataccacct accaggtgag ctggaatgaa gaggttaata aggctagaag tggtgactac    360

agtgtgaagc tgtacgatga agaaggatac ggagcagtac gcaaagctca gagatcaggt    420

gaagagaaca aggtcaaacc actagcaacc gttgttgttc gacatccagg aacatacact    480

ggaccatggt tcaattccga aatcctcgca gctggtctca ttgctgttgt tgcctacttt    540

gctttctcaa cgcgaagcaa aattctttcc taaagagacg cagcatgaaa tttcacaaaa    600

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<212> PRT
<213> Lutzomyia longipalpis

<400> 67

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Tyr Ala Lys Ala Arg Pro Leu Glu Asp Ile Ser Ser Asp Leu Ser Pro
20 25 30

Asp Tyr Tyr Ile Thr Glu Gly Tyr Asp Gly Val Lys Glu Lys Arg Glu
35 40 45

Ile Glu Leu Val Pro Val Thr Phe Gly Ile Phe Asn Ile His Thr Thr
50 55 60

Pro Ala Pro Arg Ile Thr Phe Glu Trp
65 70

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<211> 379
<212> DNA
<213> Lutzomyia longipalpis

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gttggttttc tatgctaaag ctagaccact agaagacatc tcgtcagatc tttcccctga 120

ttattacatc actgaaggct atgacggtgt gaaggagaag agagagatcg aacttgtacc 180

tgtgacattt ggaatattta atatacatac aacacctgct cccagaatta cctttgaatg 240

gtaaaaaatc caagaagaat ttatgatttt attcttcctt ccattgggat ggattgtaag 300

tcagcataaa acgccgttaa aaatgaattt ttaataaaaa aaaattattc caaaaaaaaa 360

aaaaaaaaaa aaaaaaaaa 379

<210> 69
<211> 76
<212> PRT
<213> Lutzomyia longipalpis

<400> 69

Met Lys Leu Phe Cys Leu Ile Phe Val Val Phe Val Ala Leu Glu Val
1 5 10 15

Cys Ile Glu Thr Val Lys Ala Met Glu Ala Thr Glu Glu Ile Ser Val
20 25 30

Lys Leu Gln Asp Asp Ala Asn Glu Pro Asp Asp Ser Leu Asp Leu Asp
35 40 45

Glu Gly Leu Pro Asp Ala Phe Asp Glu Asp Tyr Asn Asn Gln Ala Glu
50 55 60

Tyr Lys Pro Asn Pro Arg Gly Asp Tyr Arg Arg Arg
65 70 75

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tatctgtaaa attgcaagat gatgcgaatg aacctgatga ctctctggat ttagacgaag 180

gtcttcctga tgcattcgat gaggactata ataatcaggc tgagtacaag ccgaatccta 240

gaggggacta cagaagacga taattaatat aaattcagga aaacactcta aaaatttcca 300

attgactcta ctttaaacga tttaatacct acctacacta aataccatat gcaataatta 360

tgttttaatt atttagtgca agatctacta gtttcagttc atattttggg actttcccgc 420

ctttctctcg atggaaaaat gattttacgg attcttaatt ttcattgtac agagttaata 480

aaacaattga aagcaattaa aaaaaaaaaa aaaaaaaaaa aaaaaa 526

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<211> 22
<212> DNA
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<220>
<223> Oligonucleotide primer

<400> 71
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<210> 72
<211> 22
<212> DNA
<213> Artificial sequence

<220>
<223> Oligonucleotide primer

<400> 72
ctcttcgcta ttacgccagc tg 22

<210> 73
<211> 24
<212> DNA
<213> Artificial sequence

<220>
<223> Oligonucleotide primer

<400> 73
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